

JUNE 1959

Established in 1945 as FLOW Magazine

# Material Handling Engineering

**MHI  
SHOW  
ISSUE**

The Material  
Handling Institute's  
Exposition of 1959  
Details follow page 34

STEVENSON RICE  
UNIVERSITY MICROFILMS  
313 NORTH FIRST ST  
ANN ARBOR MICH 48106  
FIZ

*This special  
copy  
includes the*

## Material Handling in the Big 3

CHRYSLER



PUBLISHED BY THE INDUSTRIAL PUBLISHING CORPORATION

The original publication of the material handling industry, preferred by identified buyers of material handling, packaging and shipping equipment and supplies.

# One **RUGGED** Swivel Construction \* for a whole range of **CASTER DESIGNS**

**... assures dependable,  
low-cost  
materials handling**

The 900 Series Caster and its variations—featuring 2 full rows of ball bearings rolling in 2 separate, hardened enclosed raceways, for easy swiveling, heavy gauge steel horn and top plate for extra strength—are examples of the variety and scope of the Faultless line. Freight handling, work scaffolds, automatic tow lines—whatever your material handling problem—Faultless, the "Complete Line" backed by nearly three-quarters of a century of caster-making experience, assures you the Caster to best do your job.

## **Faultless 900GS Caster with Triple Grease Sealed Bearings**



### \* **Dirt Can't Hurt it!**

900 GS combines dependable Faultless Double Ball Bearing Swivel construction with triple grease seals to give positive protection to swivel and wheel bearings wherever dirt, steam, chemicals are encountered—minimizes "down-time." Choice of hard and cushion tread wheels in sizes and capacities from 240 to 650 lbs. per caster.

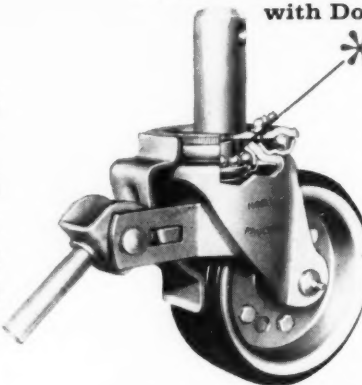


**NOELTING**  
**Faultless**  
**Casters**

## **Faultless 900 Medium-Heavy Duty Caster**

The 900 Series is a rugged, all-purpose Caster with Double Ball Bearing Swivel that out-performs the ordinary kind. Full drawn steel horn formed for surplus strength. Complete selection of wheels to suit floor surfaces, loads and operating conditions make it the ideal choice for use wherever high quality Industrial Casters are needed for medium-heavy duty applications.

## **Faultless C900 Scaffold Caster with Double Safety Locks**



### \* **Protects Workers on Mobile Equipment**

C900 Scaffold Caster combines an easy-to-use foot-operated brake lever which simultaneously locks both swivel and wheel and famous Faultless Double Ball Bearing Swivel construction—assuring safe and positive handling of mobile equipment holding workmen—making it the ideal caster for industrial, military and construction equipment.

### **ASK YOUR DISTRIBUTOR**

Your nearby Faultless Industrial Distributor maintains a substantial inventory of Faultless Casters for immediate delivery. He and one of the strategically located Faultless Sales Engineers are available to work with you on every handling problem in your plant. Both are listed in the phone book Yellow Pages, under "Casters," and the Faultless heading.



### **WRITE FOR**

**FREE LITERATURE**

**Faultless  
Caster  
Corporation**

**Evansville 7  
Indiana**



Please send information on the following casters:

☐ 900 Series

☐ 900GS Grease Sealed

☐ C900 Scaffold

Name \_\_\_\_\_

Title \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

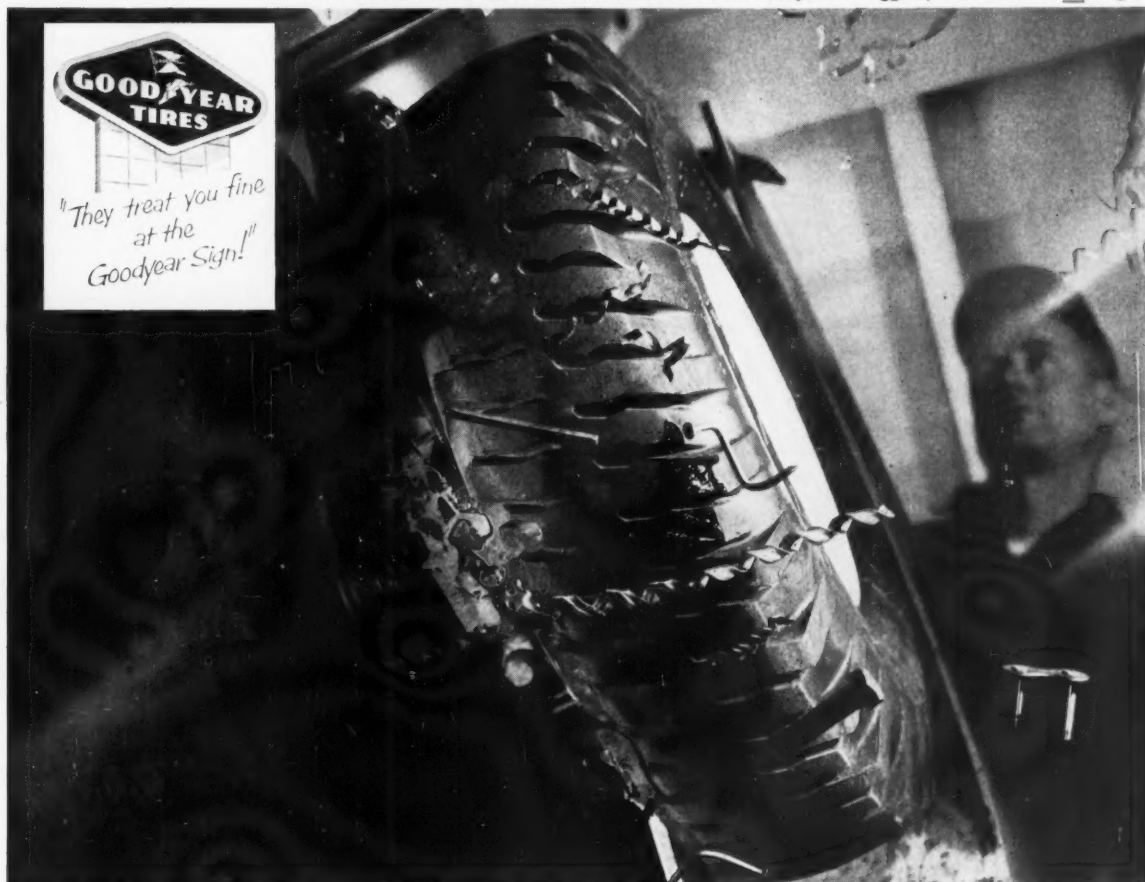
Zone \_\_\_\_\_

State \_\_\_\_\_

Circle 78 on Reader Service Card for more information



New STEEL GUARD Industrial Pneumatic Tire from Goodyear—a rugged performer from any angle!



## NEW PERSPECTIVE ON "PNEUMATICS"

We put this industrial truck "on glass" to give you the clearest possible view of the amazing new STEEL GUARD Tire in action.

This unusual photo illustrates—in a striking way—*three important points* that may well change your entire viewpoint on pneumatic industrial tires:

① Notice how the STEEL GUARD rolls right over sharp objects that would puncture other tires. The reason: a rubber-embedded *barrier of steel cables* locked firmly in place between plies—even reaching across the shoulders of the tire.

② Next, look at the rugged lugs on this STEEL GUARD. They provide extra traction and impact resistance on

roughest surfaces (even brickyards and foundry floors).

③ Look now at the sidewall of this STEEL GUARD. Yes, this is a *pneumatic* tire with all the smoothness, stability and flotation of the finest pneumatic tires—yet able to operate in areas where tires of this type failed prematurely before.

Why not let your Goodyear Dealer give you a new slant on pneumatic industrials—and STEEL GUARD—today. Or write Goodyear, Industrial Tire Sales, Akron 16, Ohio.



*Bringing new economies to modern materials handling—*

**INDUSTRIAL TIRES BY**

# GOODYEAR

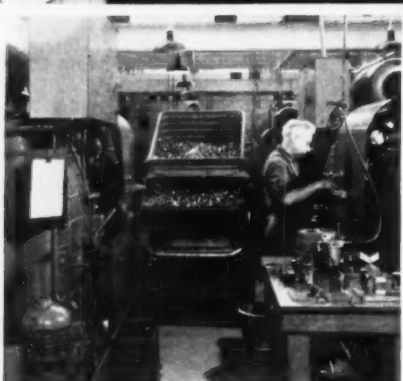
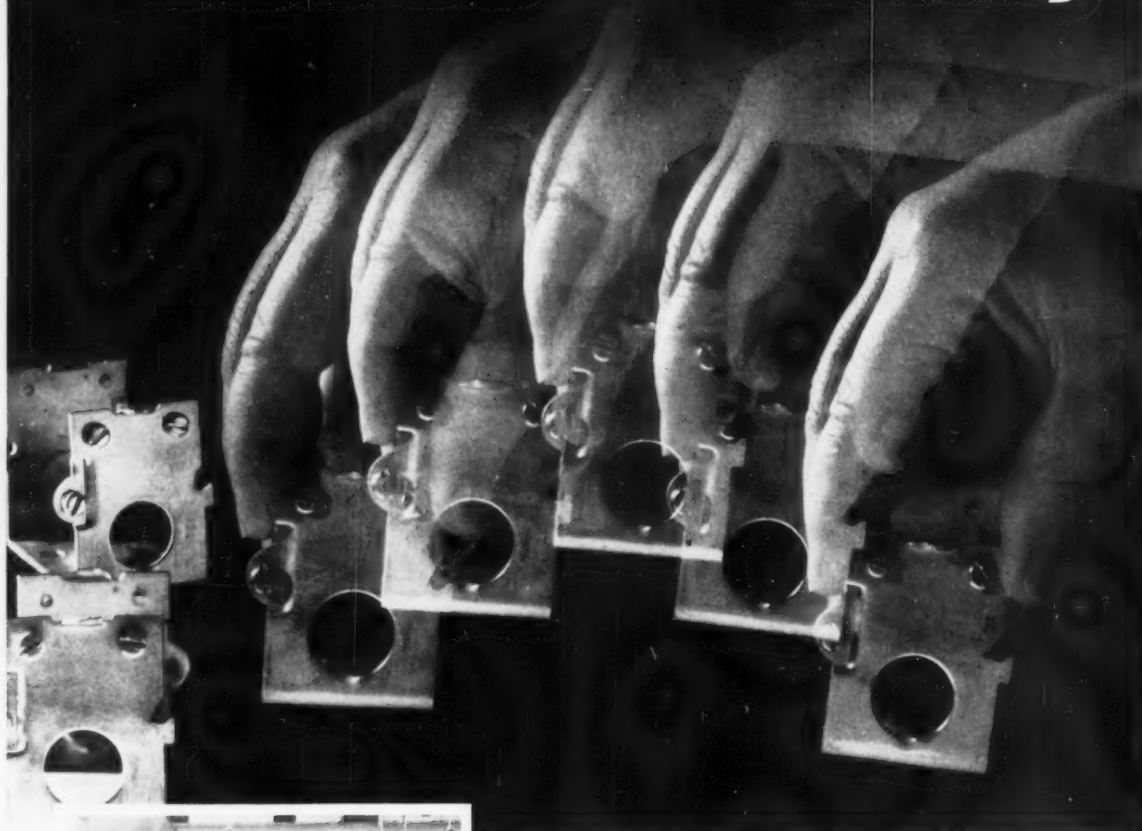
Steel Guard—T. M. The Goodyear Tire & Rubber Company, Akron, Ohio

**MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND**

Circle 87 on Reader Service Card for more information

JUNE, 1959

# *motion* MEANS *money*



For example, at Eaton Manufacturing, FLOW-MATION\* is in operation wherever possible, holding handling costs to an absolute minimum.

**M**OVING a part or a product costs money—yet adds nothing to its value. It is here that costs can be cut without sacrificing product quality. Alert management has long been aware of these facts and are ever in search of equipment that will reduce the cost of handling.

That's why Powell's new FLOW-MATION\* system has been such a success. It reduces handling to an absolute minimum both at the machine operation and in traffic and inventory. FLOW-MATION\* is the most efficient system ever devised and it's hard at work every day cutting costs in some of the largest corporations in the land.

If you're not familiar with FLOW-MATION\* you're not up-to-date in modern handling techniques. Why not let a Powell handling expert explain it in detail at your convenience. Write today to the Powell Pressed Steel Co., Hubbard, Ohio for full information.

See us at the MATERIAL HANDLING EXPOSITION—Booth 706

\*Patent: No. 2762529

15-A  
©T.M. registered  
by The Powell  
Pressed Steel Co.



## **POWELL** *flow-matic*<sup>®</sup> SYSTEMS

The Powell Pressed Steel Co.

Hubbard, Ohio

Circle 142 on Reader Service Card for more information

MATERIAL HANDLING ENGINEERING

reader's guide to



for June 1959

**COVER:** The emblems of the Big Three signify something more than the names of the companies—Chrysler, Ford, General Motors. In this issue these insignia will represent three of the world's outstanding material handling systems. You'll learn a lot of material handling techniques from reading about the Big Three's management, engineering, and applications approach to the subject.

## Material Handling in the Big 3

### FORD

#### **YOU CAN'T RUN A PLANT BY THE SEAT OF YOUR PANTS**

Ford knows that good equipment alone is not enough.

#### **DEVELOP AN INTEGRATED SYSTEM**

Responsibilities of everyone on the Ford material handling team.

#### **STANDARDS—BUILDING BLOCKS OR STUMBLING BLOCKS?**

What you can expect from packaging and handling standardization.

#### **MATERIAL HANDLING—FORD'S TOP ASSEMBLY WORKER**

Overhead conveyors make transmission assembly a precisely timed operation.

#### **PLAN TO UNLOAD CARS BEFORE THEY'RE LOADED**

Vendors load cars to fit Ford's handling methods.

#### **SMOOTH HANDLING OF A 776,335,840 MODEL-MIX**

You'll almost never see two identical cars on Ford's assembly lines.

### CHRYSLER

#### **DON'T SOLVE HANDLING PROBLEMS IN BITS AND PIECES**

Chrysler says: "Engineer them out of manufacturing."

#### **3-LEVEL APPROACH TO HANDLING**

Material handling engineering at Chrysler is effectively organized.

#### **CONTAINER STANDARDIZATION CUTS HANDLING COSTS**

Five standard containers can do 90 to 95 percent of the jobs at Chrysler.

#### **HOW TO PLAN MATERIAL HANDLING**

It starts before the plant is built, extends from vendor to customer.

#### **IMPERIAL PLANT PUTS MATERIAL HANDLING TO WORK**

Case history of economical handling built around trailer-trains and fork trucks.

#### **SCRAP HANDLING SYSTEM MOVES 300 TONS A DAY**

Story of how Chrysler's Ohio Stamping Plant handles its trim.

### GENERAL MOTORS

#### **THE BEST MATERIAL HANDLING IS NO HANDLING AT ALL**

How management views material handling at General Motors.

#### **WE HAVE OUR OWN MATERIAL HANDLING SOCIETY**

Decentralized, GM Divisions keep in touch through important MH committees.

#### **PRECISION HANDLING IS THE KEY TO AUTOMOBILE ASSEMBLY**

Handling like clockwork keeps cars rolling off the line 1 a minute at Chevrolet Flint.

#### **ULTRA-MODERN WAREHOUSE SPEEDS PARTS DISTRIBUTION**

Chevrolet's new Otterburn warehouse: the most automatic of its kind.

#### **FLOW CHANGE BOOSTS PLANT OUTPUT**

GM's New Departure Div. makes more bearings by changing handling.

#### **DRIVE-IN STORAGE**

Capacity for warehousing batteries is increased 40 percent without adding floor space.

#### **EVERY KIND OF HANDLING JOB**

Five cost-cutting methods of handling in the Big 3.

### A SPECIAL REPORT

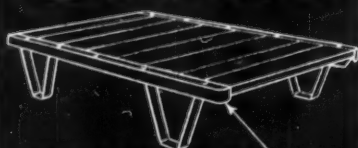
#### **FIBRE BOX COMPETITION WINNERS**

This year's top containers include many ingenious designs.

Accepted as Controlled Circulation publication at Philadelphia, Pa. Printed in U.S.A.

Postmaster: Send form 3579 to Room 800, 812 Huron Road, Cleveland 15, Ohio.

# Ironbound Skids



ROUNDED SAFETY CORNERS

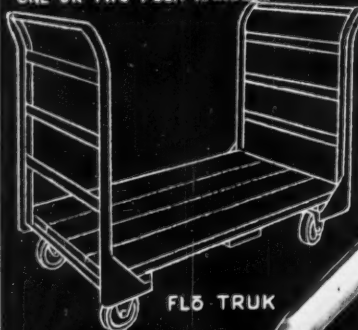
## "Short-Haul" Skids



ONE JACK SERVES MANY SKIDS

## Floor Trucks

ONE OR TWO PUSH HANDLES



FLB TRUK

Write for  
Illustrated  
Catalog

BOUND TO BE BETTER  
**Ironbound**  
MATERIALS HANDLING EQUIPMENT

**IRONBOUND BOX &  
LUMBER COMPANY**

30 HOFFMAN PLACE, HILLSIDE, N. J.

Circle 101 on Reader Service Card

# Material Handling Engineering

volume 14 number 9

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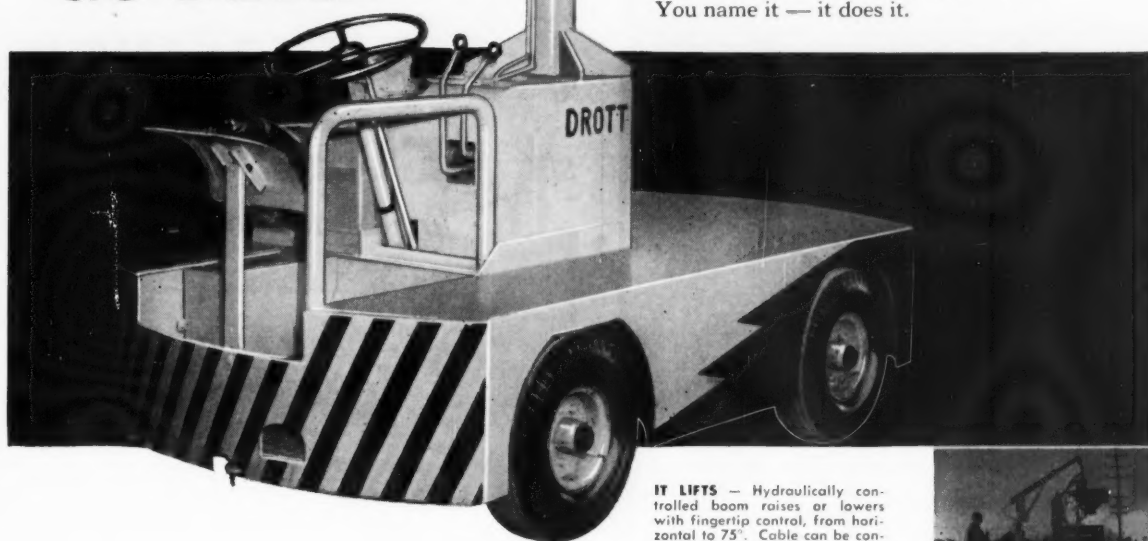
we'll take you along the  
aisles of the 1959 Exposition. We'll tell you who the exhibitors  
were and show you the new and improved material handling  
equipment they displayed. The July MHE will also present an  
exclusive feature about the first installation of a brand-new  
concept of pushbutton warehousing.

MATERIAL HANDLING ENGINEERING



there are 101 ways  
to cut handling  
costs with the new

# DROTT "GO-DEVIL"



If you're looking for cost-cutting ideas in materials handling, put your imagination to work on the possibilities offered by the new Drott "Go-Devil". You name it — it does it.

Here are just a few of  
the 101 time-saving applications  
for the "Go-Devil".



## SPECIFICATIONS

MODEL	CAPACITY	FULL EXTENSION	BOOM	
			LIFT	ROTATION
20 RM2	2000 LBS.	8' 6"	HORIZ. TO 75°	360° CONTINUOUS
50 RM2	5000 LBS.	18' 0"	HORIZ. TO 75°	360° CONTINUOUS

Sold through Materials Handling Equipment Dealers — some territories available.

## DROTT MANUFACTURING CORP.

Materials Handling Division  
3126 South 27th Street  
Milwaukee 15, Wisconsin

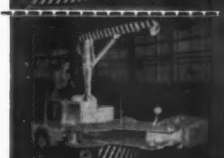
**IT LIFTS** — Hydraulically controlled boom raises or lowers with fingertip control, from horizontal to 75°. Cable can be controlled simultaneously.

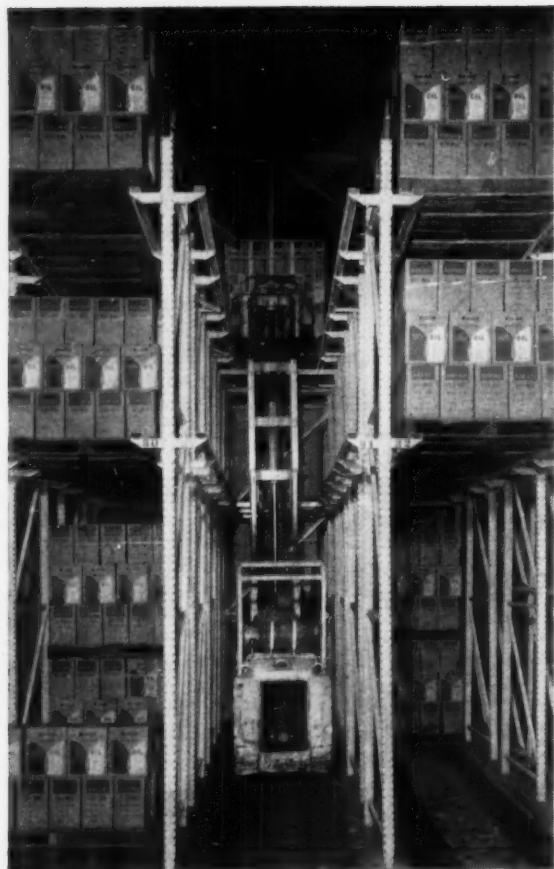
**IT REACHES** — Boom hydraulically extends and retracts — extension control can be simultaneous with other actions of the boom.

**IT HAULS** — Large, sturdy platform makes it a hard-working mobile truck. Stakes and side platform area permit hauling pipe and other long objects.

**IT SWINGS** — Full, continuous rotating boom swings at safe maximum speed of 3 R.P.M.

**IT MANEUVERS** — Touch control of forward and reverse provide complete maneuverability for cramped quarters, plenty of speed for yard areas.





# SPEEDRACK SAVES SPACE

**STORAGE  
PRODUCTS  
CORPORATION**

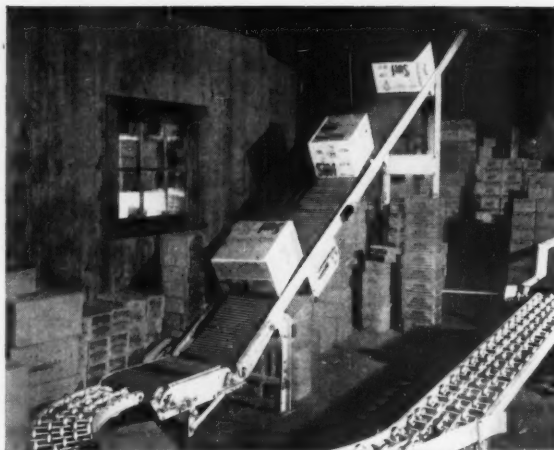
4400 OAKTON ST.  
SKOKIE • ILLINOIS

Write for  
New Catalog

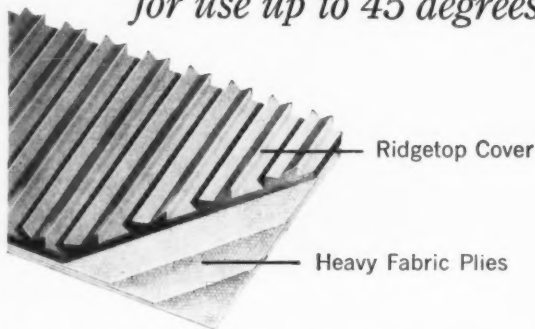


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6



**STEEP INCLINE?**  
*specify* **ridgetop**  
*for use up to 45 degrees!*



Troubled with slippage on steep inclines? Or, perhaps you'd like to go steeper, to save floor space and belt length, yet can't because your present belt won't handle the angle? Then New York Rubber's Ridgetop is your answer!

The exclusive patented design of this ingenious belt incorporates a soft, pliable (yet tough) two-way toothed cover surface. It grabs the widest range of package sizes, shapes, weights and surfaces. The corrugated peak design provides the highest friction coefficient in this grade belt, resisting slippage on inclines up to 45°.

Other features include non-hardening cover material, and self-cleaning surface design (V-grooves flare as belt flexes over pulleys). Special oil-resistant Neoprene construction and a variety of covers are available on special order, although our standard cover will have the greatest gripping power.

For more information about this and other unique New York Rubber belts, write to Department MHE-10



**NEW YORK RUBBER**  
CORPORATION

Established 1851

100 PARK AVENUE • NEW YORK 17, NEW YORK

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**MATERIAL HANDLING ENGINEERING**

# Power-Flex

View shows major components of a Power-Flex installation and indicates a few of the many power and free rail configurations possible with this system.

**the new  
proved\*  
CM Power  
and Free  
conveyor  
system**

\*Names and locations of installations on request.

## **...equipped with Telematic dispatch control**

Illustration below shows trolley mounted Telematic route selector dispatch head and transistorized switch control station. Telematic automatically guides carrier to any station in the system.

## **Power-Flex construction and operating features include:**

- **RAILS** roll formed of high tensile strength corrosion resistant steel.
- **SWITCHES** are manual or fast acting electric; have curve radii maintained through switch.
- **POWER CHAIN** is carburized, heat treated high strength "CM" welded link design.
- **CURVES** are factory formed to close tolerance and heat treated.

Power-Flex fills the need for a quality power and free conveyor system to handle light, medium and heavier loads up to 600 lbs. maximum per work carrier. In addition to many new features for systems of this type, it introduces substantial economies in initial investment and daily operation through advanced mechanical design and control developments. In fact, Power-Flex makes it possible for the first time to employ power and free conveyors where initial costs for such systems heretofore prohibited their use. Power-Flex is ideal for transportation applications involving storage banks, manufacturing work stations, segregations or intergration of work carriers or inventory, and related materials handling. It is an extremely flexible system adaptable to practically every individual requirement.

Power-Flex maintenance is facilitated by inspection sections in the rails.

## **SEND FOR BULLETIN**

Home and regional office engineers available to work with you or your consultants. Complete installation service available if desired.



**CM**  
**CONVEYORS**

**COLUMBUS McKINNON CHAIN CORPORATION**  
Conveyor Division  
TONAWANDA, NEW YORK

*Built By the Makers of CM Hoists and Chain...  
Materials Handling Specialists for 75 Years.*

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# YOUR ELECTRIC TRUCK BATTERY

Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 20, Pa.



**Up to 44% more power.** New Exide-Ironclad Batteries with armored porous tubing pack more power in the same size. So you can boost the work capacity of your present trucks, large or small—do more work. Or get the same power in a smaller size. Either way, you get longer life potential and more power per dollar for greater battery economy.

## 50 YEARS AGO, EXIDE PATENTED THE TUBULAR PLATE BATTERY

Exide was already 21 years old when it launched the Exide-Ironclad Battery—back in 1909. But the idea of the tubular positive plate was brand new. It was especially designed for electric truck service. Would it really give the longer battery life Exide engineers expected? Would it make possible greater battery economy? Look at the results.

Against every other type of battery—in every type of industrial truck application—in all kinds of heavy duty service, nothing has been found to match the Exide-Ironclad. A recent survey revealed that 91% of truck owners who have used Exide Batteries still use them. Once they experience the advantages Exide Batteries offer, they seldom buy any other brand. No other battery ap-

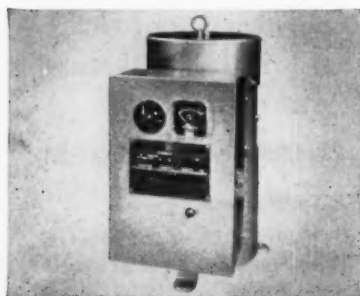
proaches this record of user satisfaction.

Today, of course, the Exide-Ironclad Battery is 50 years better than it was in the beginning. Exide engineers have constantly improved it. They have learned the secrets about tubular plate construction that only experience could teach—secrets about casting the lead grids, formulating grid alloys, composition of active material, filling the tubes, performance of tubing (about 20 different types were tested over a 15-year period before the last change). So the new Exide-Ironclad Batteries give today's buyer greater life and economy than ever before.

**For more details on the new Exide-Ironclad Batteries, write for a copy of the 8-page, illustrated Brochure #6230**



**Today's advanced-design electric industrial trucks yield their greatest economy and productivity when teamed with the new, more powerful, Exide-Ironclad Batteries.**



### Now—get your chargers from Exide too

A complete line of chargers for electric truck batteries. New vertical-design motor generator chargers feature down-draft cooling for cleaner operation. Save  $\frac{2}{3}$  on floor area mounting space required. Can also be wall mounted. Simplified design and standardized construction make possible significant parts economies which are passed on to you. With Exide as your single source for both

batteries and chargers, you are assured of better value, better performance and better service. Write for new brochure giving complete information.

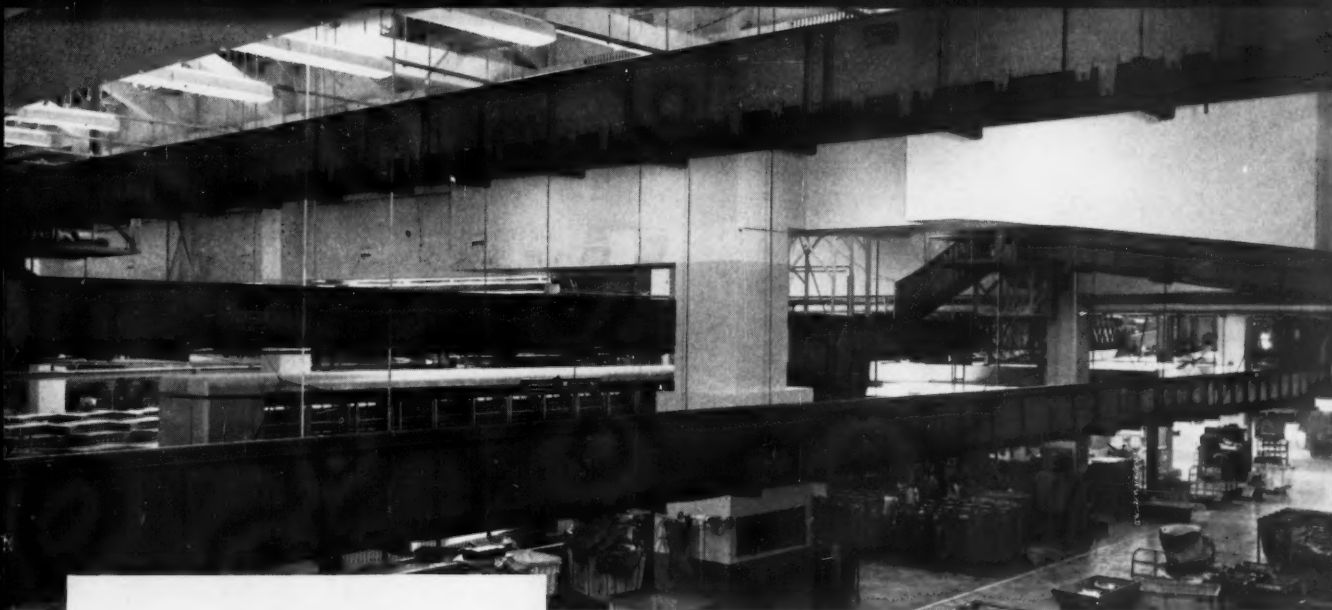
# Exide®

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**MATERIAL HANDLING ENGINEERING**

Circle 77 on Reader Service Card➤





*More than a mile*  
**of OLIVER-FARQUHAR**  
**Power Belt**  
**Conveyors**  
*now move the mail*  
**at the Washington, D. C.,**  
**City Post Office**

For purposes of identification, Oliver-Farquhar Conveyors are shown in green. As installed, these conveyors are finished, of course, in Government-specified gray.

The basic facts on this new Oliver-Farquhar Conveying System in the Washington, D. C., Post Office are fairly staggering.

**These are the delivery facts:**

Started in August of last year, in partial service for the Christmas rush, fully operating by March of this year.

**These are the operating facts:**

This huge conveying system moves the mail to and from truck loading areas and the Union Station (across the street from the Post Office), into and through the Post Office for sorting, temporary storage and mail-out operations.

Oliver-Farquhar engineers regularly plan and develop conveying systems that cut handling costs for manufacturers, wholesalers and retailers throughout the country. Whatever your conveying needs may be, contact our engineers now for their recommendations. Write, wire or phone today—there is absolutely no obligation!

**THE OLIVER CORPORATION • A. B. FARQUHAR DIVISION**

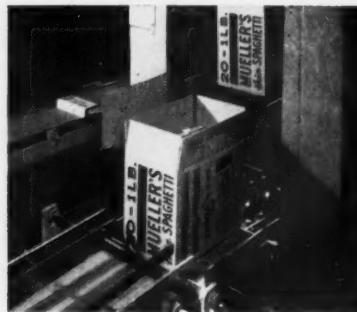
CONVEYOR DEPARTMENT E-06, YORK, PENNSYLVANIA

Factory Branch: 618 W. Elm St., Chicago 10, Ill.

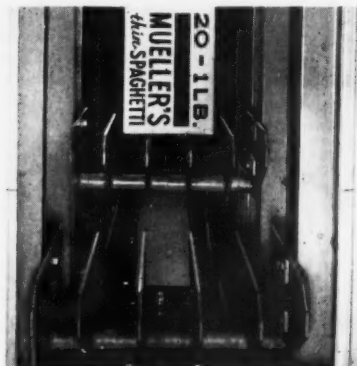
Construction Details of the Oliver-Farquhar Conveyor System in the Washington, D. C., Post Office...

- A total of 5825 feet of Oliver-Farquhar power belt conveyor lines requiring: • 200 tons of steel • 510 pulleys • 4300 rollers • 36 curves • 109 straight chutes • 14,400 feet of belting • Over 30 miles of electric wiring.
- Also spiral chutes, work platforms, sorting areas, electronically powered traveling deflectors.





Close-up shows a filled carton beginning its gentle Tray Elevator ride upward. In the foreground, the next carton in line has moved off conveyor belt and is automatically held back until oncoming tray appears.



Moving straight up, the carton rests on a fixed, non-pendulum tray that neither swings nor sways . . . always holds carton steady, secure. Note how carton's open end bottom is held in a closed position until it reaches the sealing unit.



Just beneath the room's ceiling, the carton leaves the tray via rollers. Conveyor belt then takes over, moving carton through the sealing operation. Although a six-per-minute schedule is timed here, the elevator can move up to 15 cartons every minute.

## Space-Saving Tray Elevator Boosts Mueller Production!

Because this Robo-Lift Tray Elevator ascends straight up, C. F. Mueller Co., Jersey City, increased production without costly remodeling. To cope with stepped-up consumer demand, the nation's largest macaroni manufacturer rearranged and increased the capacity of its product weighing, packaging, cartoning and sealing operations. To hike the output, engineers placed the automatic sealing unit high above floor level. However, due to cramped quarters, a vertical elevator was needed to carry product-filled cartons to the sealer.

Only the Lynch Robo-Lift Tray Elevator met all requirements and specifications.

Space-saving and jam-proof, the automatic upright operates a sixteen-hour shift, handling cartons at the prescribed rate of six-per-minute. Featuring unique infeed and discharge systems, the elevator cannot jam—ever. And, unlike bar and belt-type models, it doesn't mar or rub a carton's printed message. Through fixed positioning of trays, pendulum action is eliminated and cartons ride safe, secure, easy.

Robo-Lift Tray Elevators are available for a variety of lifting or lowering assignments. For full details on how Tray Elevators serve, request free literature, today.



Write for illustrated booklet which details the complete story titled, "LYNCH Robo-Lift Tray Elevator . . . moves cartons vertically, saves time, money, floor space at C. F. Mueller Company."

**Lynch Corporation**—Manufacturing Engineers of automatic processing equipment for the glass, packaging, plastic and other industries.

Atlanta • Chicago • Wallington, N. J. • Kansas City, Kansas • San Francisco



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**MATERIAL HANDLING ENGINEERING**



## Towmotor one-truck "fleet"!

Operating one of the new Towmotor Fork Lift Trucks is like having a fleet. A *multiple-threat* to your material handling costs!

Fifteen standard Towmotor fork lift trucks are so compact they drive under *six-foot doorways* . . . deposit loads *inside* boxcars and trailers . . . enter *elevators* for fast floor-to-floor service . . . skim through *4-foot aisles* safely. And all stack capacity loads to maximum heights, indoors and outdoors, with positive control!

Let us send you complete information. Ask for *Certified Job Studies* applying to your own business — and the new *Pace-Maker* Booklet SP-23. Write Towmotor Corporation, Cleveland 10, Ohio.



**-GERLINGER**

LEADERS FOR 40 YEARS IN BUILDING  
FORK LIFT TRUCKS, CARRIERS AND TRACTORS

Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation

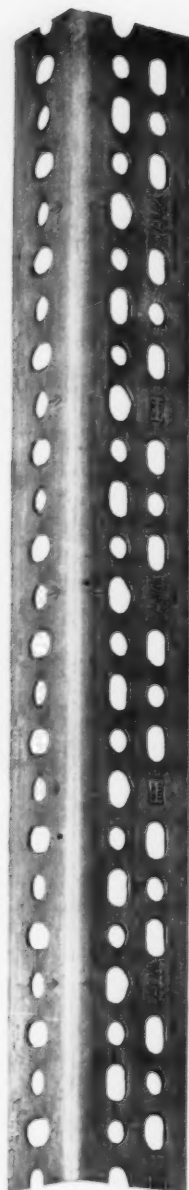
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whatever your  
ideas suggest—  
build it with **NEW**



# SLOTTED ANGLE



**SO STRONG**—AIM Brand Slotted Angle is ideal for building heavy-duty equipment, such as this automobile display rack.



**SO EASY**—AIM Brand Slotted Angle simplifies construction of storage equipment, such as this pallet rack with catwalk.



**SO VERSATILE**—This unusual street light testing device is another idea application of AIM Brand Slotted Angle.

There's practically no limit to what you can build with new AIM Brand Slotted Angle—the only framing material that gives you Lock-Joints, Friction-Joints and  $\frac{3}{8}$ " structural bolts.

The new, scientifically-spaced, slot-and-hole bolting pattern lets you meet all your building equipment needs with less manhours, less material and with greater structural strength. For normal construction and good rigidity, Friction-Joints are formed by bolting through the slots. For maximum strength and rigidity,  $\frac{3}{8}$ " structural bolts with full load shoulders fit round holes to form Lock-Joints. Each bolt has a safe load capacity of 2000 pounds, and can be applied with an ordinary or a power wrench.

As your needs change, AIM Brand Slotted Angle can be dismantled to be re-used again and again. This versatile framing material is available in two sizes: Standard 225-80 ( $2\frac{1}{4}$ " x  $1\frac{1}{2}$ " x .080") and Heavy-duty 300-104 ( $3$ " x  $1\frac{1}{2}$ " x .104"). Packaged in 10 pieces of 10 or 12-foot lengths with nuts and bolts.

Cold-rolled galvanized steel, AIM Brand Slotted Angle is a product of Acme Steel Company, U. S. pioneers in slotted angle framing material. Available nationally through leading distributors or write: Dept. MJD-69, Fabricated Materials Division, Acme Steel Company, 135th Street and Perry Avenue, Chicago 27, Illinois.



## AIM Brand Slotted Angle



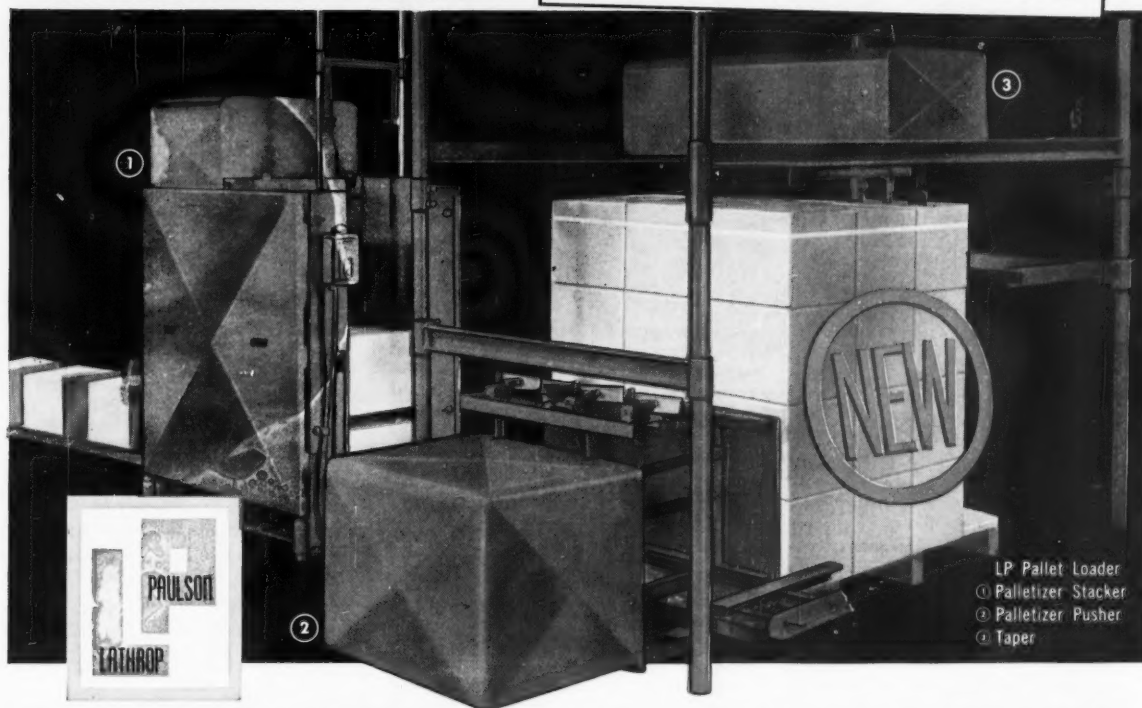
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MATERIAL HANDLING ENGINEERING



## A GREAT NEW CONCEPT IN ENGINEERING AND DESIGN...

See it at the Material Handling Institute Exposition of 1959  
Booth 1425 • Public Auditorium, Cleveland, Ohio • June 9-12



# AUTOMATIC PALLET LOADER

*Priced Within the Budget of Every Firm*

Saves Labor—No Operator Required • Handles Various Size Cartons • Lower Initial Cost  
Easily Adapted to Production Layout • Minimum Maintenance • No Elevated Inflow Required

A revolutionary new Pallet Loader . . . lower in price . . . easier to maintain . . . simpler to operate. Cuts labor costs—speeds production. Installations to load 15 or 30 cartons per minute. It automatically loads pallets, skids, or dollies.

Eliminates calculation and setup of pattern design. Reduces carton and content damage. The LP Pallet Loader fits into any layout. The LP Automatic Pallet Loader, if required, tapes top layer of cartons for maximum stability.



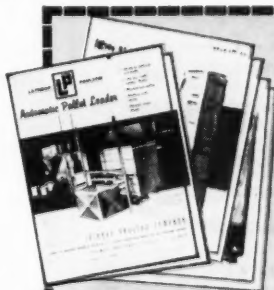
**LATHROP PAULSON COMPANY**

2457 West 48th Street • Chicago 32, Illinois  
Leading manufacturers of Conveyors • Pallet Loaders • Stackers • Casing  
Machines • Case, Tank and Can Washers • Other Special Equipment

Automation Since 1915

FIND OUT ABOUT THE NEW  
LP AUTOMATIC PALLET LOADER.  
SEND FOR THE NEW FREE BOOKLET

Here is the time and money saving story on the new LP Pallet Loader. 10 minutes of important reading to every businessman interested in maximum material handling efficiency . . . at minimum cost.



**Lathrop Paulson Company**

2457 West 48th Street, Chicago 32, Illinois

Gentlemen:

Please rush me your new free booklet on the LP Automatic Pallet Loader with no obligation.

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

**CAN PAY FOR ITSELF  
IN 4 TO 9 MONTHS**

*Palletizer Stacker and Pusher*

**\$5,500**  
*plus Conveyor*

*Taper optional*  
**\$2,000**

*Can be Financed or Leased*

# Industry's most complete line of HEAVY DUTY FLOOR MACHINES



**TENNANT**  
Model K

As America's most widely used machines for cleaning industrial floors, TENNANT Machines are standard equipment today—in 96 out of 100 major plants.

You will find them in a class by themselves for removing hard grease-caked dirt from your floors in one operation. Here are typical cost-saving models:

**FOR CONGESTED AREAS**—Rugged, versatile walk-behind Floor Machine (Model K). Instantly pulverizes and picks up soilage from 16" path. Powerful 1750 rpm wire brush shears off incrustated grime deposits and hurls it into the hopper. Leaves a clean, dry surface. Works close to machines, walls, etc. Gasoline or electric models; accessories for sanding, steel wool buffing, etc.



**TENNANT**  
Model L

**FOR AISLE CLEANING**—Operator rides the TENNANT "L" as it cleans 21" path at speeds up to 3 mph. Cylindrical tool revolves at 1600 rpm. Shaves off heavy build-up of grease, dirt, wax, rubber deposits, metal chips and dried paint, at a single pass.

Cleans up to 4000 sq. ft. per hour... a rate 6 men couldn't equal by hand.

Picks up as it cleans. Powerful vacuum system controls dust. Leaves smooth, level surface for efficient trucking.

Has sensitive hydraulic controls; tool pressure is easily adjusted to obtain desired cleaning action. Has ample power to remove thick, heavy grime.



**TENNANT**  
Model R

**FOR HIGH SPEED CLEANING**—Powerful 25 hp TENNANT "R" cleans and picks up grime from 36" path; moves with traffic at speeds up to 6½ mph. Shaves off grease and dirt to leave floor clean, dry, smooth, with excellent traction.

Cleans as fast as a 6 to 18 man scraping crew... and does a far better job. Vacuum system controls dust. Ten cubic foot hopper holds approximately 700 lbs. pulverized grime; lifts and dumps hydraulically in seconds.

**WRITE TODAY** for illustrated bulletins... photos and data on how to reduce floor cleaning costs. G. H. Tennant Co., 707G N. Lilac Drive, Minneapolis 22, Minn.

Industry's Most Widely Used  
**FLOOR MACHINES**



**SPECIALIZED MAINTENANCE EQUIPMENT**

POWER SWEEPERS • FLOOR MACHINES • SCARIFIERS • ROOF SCRAPERS • CONCRETE ROUTERS

Circle 169 on Reader Service Card for more information

LETTERS  
to the  
EDITOR

## Who Makes Scales?

SIR:

In the August edition of FLOW, you had an article "Weighing While Handling". We would like to know the supplier of the hydraulic scale as shown on the upper left hand corner of page 60. The illustration shows the weighing of a large roll of paper.

We would be grateful if you could advise us the manufacturer of this type of scale.

G. Durno  
Purchasing Agent  
Bakelite Co.  
Ontario, Canada

Advised.

## Our Slip Is Showing

SIR:

Being somewhat familiar with Multiwall Bag Filling and Closing equipment, may I suggest that you re-check the captions of the photographs on pages 88 and 89 of the April 1959 issue. The baler bag caption is the only correct one of the six methods of filling and closing shown.

Both articles 1 and 2 were quite informative and interesting.

R. S. Button  
Stearns-Roger Mfg. Co.  
Denver, Col.

*Oops! Our faces are red.*

## Wants MHE Data for Book

SIR:

May I have your permission to quote from the January and August, 1958 issues of MATERIAL HANDLING ENGINEERING (formerly FLOW) in my forthcoming book, "Plant Layout and Design" to be published within the year. This is a treatment of plant layout involving the logical arrangement of industrial facilities.

James M. Moore  
Assistant Professor  
Dept. of Mechanical Engineering  
Clarkson College of Technology  
Potsdam, New York

Gladly.

## LPG and Gasoline Comparison

SIR:

We would like to have figures comparing the cost of operating lift trucks powered by LP Gas with those operated with regular gasoline. We would like to have the comparison include fuel costs.

Donald F. DeVries  
Smith-Lee Co., Inc.  
Onieda, New York

*About three years ago MHE (then FLOW) published the results of an extensive study of this subject at Ford Motor Co. A copy of this article has been sent.*

## Wants MHE Directory

SIR:

We are interested in obtaining a copy of the current FLOW Directory of Material Handling Equipment. Kindly advise us the availability and/or price of same.

Samuel Baig  
Republic Aviation Corp.  
Mineola, L. I., New York

*Following its parent magazine, the FLOW Directory, will be the MATERIAL HANDLING ENGINEERING DIRECTORY when the 1960-61 edition comes out early in 1960. The 1958-59 edition is still available at \$7.50 a copy.*

## Department of Who-Makes-It

SIR:

Will you kindly send us a list of manufacturers who are in a position to furnish electrically powered cars for use in transporting 2 to 4 persons within a plant.

W. F. Kraemer  
Brandt Automatic Cashier Co.  
Watertown, Wis.

*With pleasure. Reader Kraemer has been put in touch with six manufacturers who can help him.*

SIR:

We would appreciate receiving a copy of the article "Nine Tips for Export Packaging" which appeared in your August, 1958 issue. If there is any charge for this service, please advise the writer.

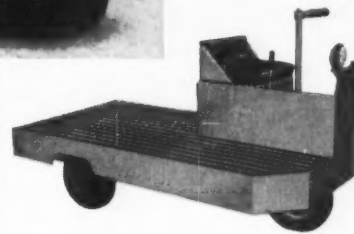
Harris M. Murray  
Berkshire Hathaway, Inc.  
New Bedford, Mass.

*Sent as requested.*



## NEW TRANSPORTER IN TWO SIZES

1000 lb. & 4000 lb. CAPACITIES

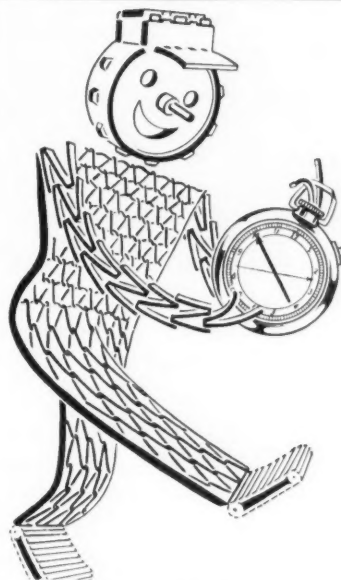


**MODEL F-40 Torque converter drive.** No shifting, smooth starts. This is a big rugged 4000 lb. capacity unit that delivers heavy duty service as a freight carrier, shuttle truck, long stock transporter, and to give mobility to equipment and personnel. 28 sq. ft. deck area.

### PRIME-MOVER

Prime-Mover transporters are marketed by industrial truck distributors. Ask there or write: Prime-Mover Co., Muscatine, Iowa.

**MODEL F-10 A 1000 lb. capacity truck.** Carries cartons, long stock, mixed freight, maintenance supplies, baggage, fire equipment. Ideal for foremen, superintendents, inspectors, supervisors. 18 sq. ft. deck area. Wisconsin engine. Industrial type combination transmission. Price: \$880 manual start; \$996 electric start. F.O.B. Muscatine, Iowa.



## CY BELT says

"I can eliminate 'time lag' and speed production!"

Too often material in process can go only so far, and then must wait until somebody carries or pushes it to the next stage in the production line. The delay caused by the need for manual handling can frequently be eliminated by a complete conveyor system that reduces manual handling to the absolute minimum. Time is saved, unit costs are reduced, and the profit margin is widened. A trained Cyclone salesman can analyze your present materials-handling system to uncover time-wasting procedures, and suggest improvements. His analysis costs nothing, and his recommendation will be tailored to your plant and your needs. Just fill in the coupon.

USS and Cyclone are registered trademarks



## Cyclone Metal Conveyor Belts

Spiral Woven • Flat Wire • Flex-Grid

### —MAIL THIS COUPON—

Cyclone Fence, American Steel & Wire  
Dept. MM69, 614 Superior Avenue, N.W.  
Cleveland 13, Ohio

Please send me, without obligation, your catalog No. 5 on Cyclone Processing Belts.

Name.....

Company.....

Address.....

City..... State.....

Cyclone Fence Dept.  
American Steel & Wire  
Division of  
United States Steel



Manufactured at Waukegan, Ill. and Oakland, Calif.  
Sales Offices, Coast to Coast

Circle 53 on Reader Service Card for more information




**meet  
the new  
money-saver**

## DISOWHEEL "STANDARDS"!

— available now for general industrial applications. Made of amazing DISOGRIN®, our unique polyurethane elastomer, DISOWHEEL® "STANDARDS" last 4 to 10 times longer than rubber ... won't mark, crack or splinter floors ... assure smoother, spill-free rides ... carry bigger loads ... cut costly downtime!

DISOWHEEL "STANDARDS," the perfect wheels for all industrial uses, are equipped with their own high grade roller bearings, are easy to

fit and rarely need replacing. "STANDARDS" are now in stock, ready for delivery in all sizes listed by the Caster and Floor Truck Manufacturers Association.

For hand trucks, trailer trains, conveyors, rolling cranes, or anywhere a wheel is needed, you'll find that DISOWHEEL will prove unbeatable. Order now—and be sure to specify DISOWHEEL, "strong as steel, resilient as rubber," with the distinctive  emblem.



Send for free brochure—write today to:

**DISOGRIN**

**INDUSTRIES**

510 SOUTH FULTON AVENUE, MOUNT VERNON, NEW YORK

Offices: Los Angeles • Boston • Chicago • Detroit • Cleveland • Washington • Distributors everywhere

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**MATERIAL HANDLING ENGINEERING**

Circle 92 on Reader Service Card➤





**FOR EVERY  
APPLICATION,  
THERE'S  
ONE CRANE  
OUTSTANDING...**

**IN METALWORKING:** Huge industrial cranes with P&H Electronic "Stepless" Control are used to handle the largest metalworking shop loads with ultra-fast speed, yet with damage-eliminating gentleness. Where duty cycles permit, smaller, moderately priced P&H cranes handle a host of lifting jobs with plenty of muscle, but low investment.

All the mechanical and electrical parts for both big and small P&H cranes are made by and warranted by P&H. We promise undivided responsibility — not a service "run-around". When we sell it, we service it — and our interest in your crane stays active as long as it is on your runway!

Isn't that the assurance you want on your next crane? Bulletin C-6, "P&H Industrial Cranes," is packed with photos and facts showing how P&H installations service *your* industry. Write Dept. 102, Harnischfeger Corporation, Milwaukee 46, Wisconsin.



**P&H**

**HARNISCHFEGER**

...quality and service for 75 years

# WHEN PRECISION PRODUCTION RIDES THE HOOK...

On a crankshaft production line, even slight damage to a crankpin can mean an expensive piece of scrap — something no manufacturer can afford.

That's why this manufacturer uses *close-spotting* P&H Zip-Lifts.

Where every movement is made with hoists, a hoist breakdown means lost production — something no manufacturer wants.

That's why this manufacturer uses *dependable* P&H Zip-Lifts.

And human beings need protection — against electric shock, mechanical failure, poor construction, and other hazards.

That's why this manufacturer uses *safe* P&H Zip-Lifts.

Are you now using close-spotting, dependable, safe P&H Zip-Lifts — or are you one of the group of hoist users who is about to switch over to them? Capacities from 250 to 2000 lbs., your choice of mountings. Priced from \$200. Write for Bulletin H-20, Dept. 201, Harnischfeger Corp., Milwaukee 46, Wisconsin.



**P&H**

**HARNISCHFEGER**  
...quality and service for 75 years

OUR 75TH YEAR

# BG Announces

an entirely **NEW** design for rigid storage racks

## Ridg rak<sup>®</sup>

PATENTS PENDING

Every BG Stringer to Upright connection is made speedily and easily without tools, bolts or nuts. Only 2 basic parts required in Ridg U rak Upright Frames and Stringers. Any pair of unskilled hands can erect, adjust, expand or re-locate a Ridg U rak system. Every connection is dovetailed by double hooks and slots and by the full length external flange on all columns. This added flange provides a long, vertical bearing area, contributing to the great rigidity of Ridg U rak. BG Ridg U rak systems have no protruding parts whatsoever—only a smooth, even surface faces the aisle.

- ① Only Ridg U rak has the vertical external gripping flange.
- ② BG pioneered double engaging hook and slot design—it is improved in Ridg U rak.
- ③ Only Ridg U rak has the 4 way\* locked connection to stop all movement.

\*Optional is BG's unique Pinch Pin for extra high capacity and for Stringer safety lock.

### BERNARD GLOEKLER North East Co.

North East, Pa.

☐ Send a copy of Ridg U rak catalog and price list.

☐ I am interested in a sales territory.

Name \_\_\_\_\_

Company \_\_\_\_\_

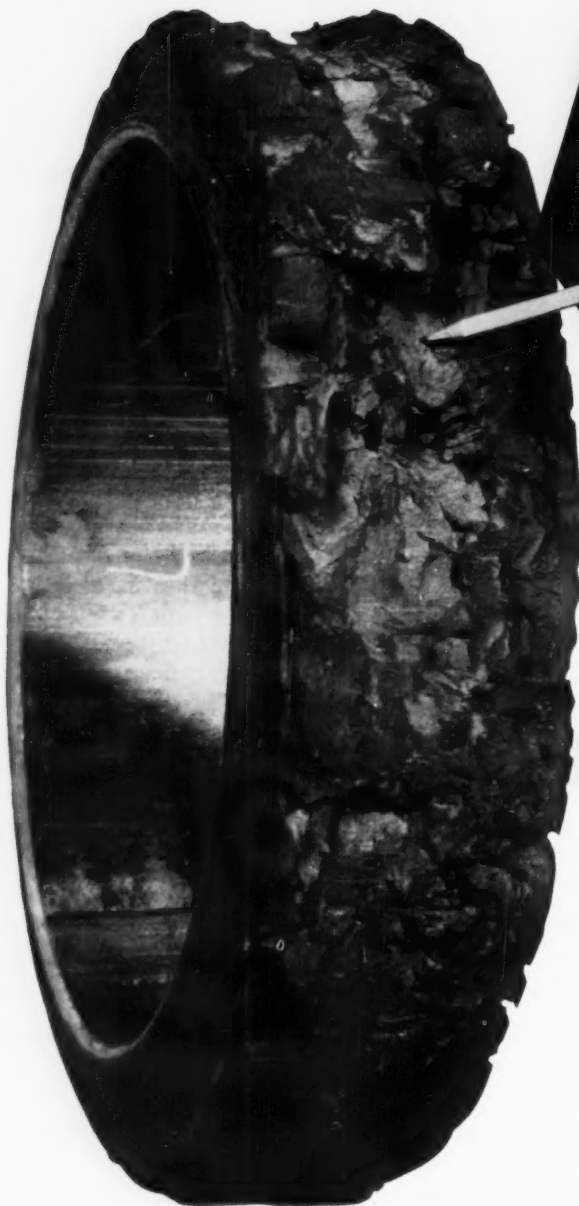
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City \_\_\_\_\_ State \_\_\_\_\_

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Booth 1525



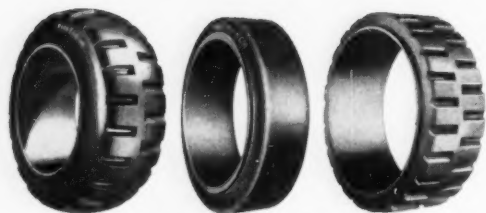
**THIS  
IS UNNECESSARY  
WASTE...**

**switch  
to  
MONARCH SOLIDS  
and reduce  
replacement costs!**

This was a lift truck tire. Its delivered cost was about \$55.00. It was one of four that failed prematurely.

The buyer, who had assumed "all solids are alike", now has a replacement tire expense of approximately \$220.00 for a single truck. And his management is asking embarrassing questions!

Selective purchasing could have reduced this maintenance cost. That is why more and more savings-conscious users . . . after comparative performance tests . . . have switched to MONARCH industrial solid tires. Made from the toughest *natural rubber* tire stock developed to date, MONARCH solids give more ton-miles per dollar invested.



FOR DETAILS AND SPECIFICATIONS, ask your Monarch dealer . . . or write direct . . . for Catalog MR-457.



**THE  
MONARCH  
RUBBER COMPANY**

210 LINCOLN PARK • HARTVILLE, OHIO  
• 7-225 General Motors Bldg., Detroit, Mich.  
• 2353 No. California Ave., Chicago, Ill.  
• Warehouse: Reno, Nevada



PSG-MR



# MATERIALS-HANDLING NEWS

NEW AND UNUSUAL APPLICATIONS OF BASSICK CASTERS THAT MIGHT BE ADAPTED TO YOUR HANDLING PROBLEMS



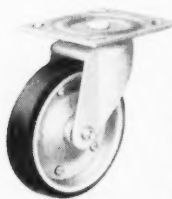
**Missile on casters.** Nike-Hercules near end of final assembly line, as specialists install cable for guidance system at plant.

## Casters give important savings in all industry and business

Following the lead of heavy industry, many light industrial firms, warehouses, and even retailers are finding reduced operating costs via streamlined materials-handling.

Casters have kept pace. Recent Bassick developments in addition to the H68 casters shown below include:

A light duty Floating Hub caster with a shock-absorbing, spring-controlled wheel designed to accommodate loads from 50 to 150 pounds. The "B-Line" of 4", 5" and 6" sanitary casters designed for easy cleaning. These are ideal for use in food processing, bottling plants, restaurants, bakeries . . . anywhere cleanliness is important.



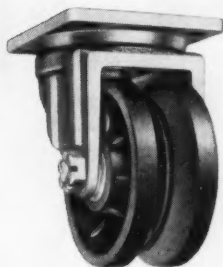
**Medium light duty Series H68** casters with two level ball bearing swivels, are ideal for industrial, warehouse and store applications. All exposed metal surfaces are zinc plated. Long service life.

## Distributors Stock Casters

Local industrial distributors who handle Bassick casters carry most popular models in stock, can deliver promptly. They can recommend the most efficient casters for your specific job. And where necessary, they may call in a factory representative for engineering recommendations or special caster designs. All of which makes your local Bassick distributor a handy man to know.

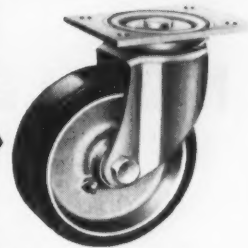
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## CASTERS AID AUTOMATION OF MATERIALS-HANDLING



**For inverted angle iron tracks:** Bassick grooved wheel casters effect amazing reductions in handling costs. Light, medium, heavy and super-heavy duty models.

**For heavy duty dragline truck systems:** Bassick Series "S99" casters combine the advantages of strength (heavy gauge steel) with light weight and economy. Sealed bearings optional.



On display at the Materials-Handling Industry's Triennial Convention in Cleveland, this year, will be in-floor dragline systems, overhead chain belt pulleys, tractor pulled truck trains, monorail and dual track set-ups.

These and other advances toward the automation of materials-handling are increasing throughout heavy industry. Here labor traditionally accounts for the bulk of operating costs and labor-saving devices are constantly being sought.

Casters that can take relatively high speeds and abuse of such power-pulled applications have also been developed over the years. Shown here are some of the specially designed Bassick casters with features that suit them for automatic

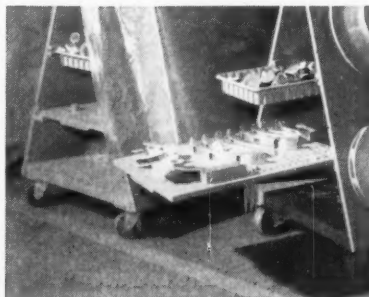
and semi-automatic handling systems. Because of their widespread acceptance, these are now standard casters in Bassick's line and are available through local industrial distributors who handle Bassick casters.



**For power-drawn truck trains:** Bassick Trailer Duty casters with heavy duty semi-steel or Bassick "On-core" wheels (shown) will take the abuse of rough floors, high speeds. Milspec and "Floating Hub" models also available.

## Rocket parts on castered carts save

### handling time, money



At this California aircraft plant, "A" frame carts, riding on Bassick casters, bring rocket turbo pump parts to the job. Top plastic shelf alone holds 100 small parts, larger components hang from sides of the cart on metal pegs.

Time saving here over separate handling of 150 components is tremendous. Parts carts on casters might cut costs for your plant, too.

THE  
BASSICK COMPANY  
BRIDGEPORT 5, CONN.  
IN CANADA:  
BELLEVILLE, ONT.



**Here's why 18  
out of America's 50  
largest firms\* chose**



## **MOBILE CRANES**

17½ ton Coles crane operating at the Baton Rouge Refinery of Esso Standard Oil Company



**COLES CRANES, INC., JOLIET, ILLINOIS**

Also sold and serviced in Canada by Coles Cranes of Canada, Ltd., 484 Kipling Avenue, South, Toronto  
**See us at Booth 1501-1606, Material Handling Show, Cleveland, June 9-12**

Circle 55 on Reader Service Card for more information

Diesel-Electric Powered to give operator positive, accurate, yet simple "finger-tip" control for hoisting, derricking, slewing and traveling.

Each crane motion has its own electric motor and electro-mechanical brakes — no gears to shift — no clutches to slip.

Fully-automatic braking on all crane motions, controlled lowering under power at all times.

Short tail superstructure makes 360° slewing in either direction a thing of ease. Short wheel base and fully reversible steering facilitates complete maneuverability in congested areas.

No complex gear trains and clutches to maintain — simple, open superstructure design permits easy access to all components.

Safe load indicator weighs load — visually and automatically warns operator attempting to lift unsafe load.

Cruiser, truck-mounted and rail-mounted types in capacities from 5 to 50 tons. Write for new Coles fact-book, "101 Cost-Cutting Ways".

\*Fortune Magazine list. Names on request.

Our  
125th  
ANNIVERSARY



*Quality-Built*  
... to do the job

**CONVEYING —**

Solid woven — FLEXTEK and other treated belting.

Stitched canvas for heavy-duty application.

FENAPLAST P. V. C. Mine Conveyor-belting.

**ENDLESS WOVEN —** featuring RUSCO ULTRA-SPEED,  
... finest high-speed transmission belt on the market.

**GEAR BELTS** and Special belts for instrument drives.

**THE RUSSELL MANUFACTURING CO.**

MIDDLETOWN, CONN.

ATLANTA

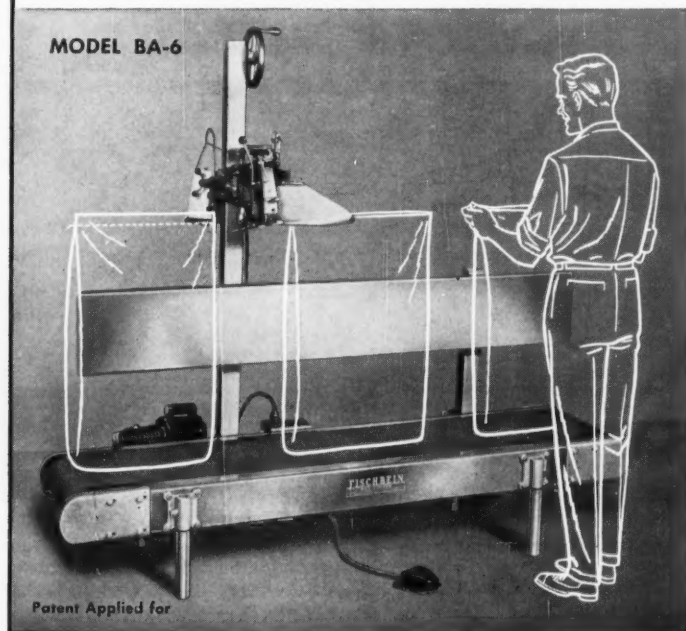
OAKLAND

CHICAGO

**FISCHBEIN® Automatic BAG CLOSER**

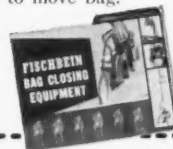
**Large Plant Production ... Small Plant Price!**

MODEL BA-6



- Bag activates and completes sewing operation automatically.
- Simple mechanical operation ... Simple installation.
- Sews at rate of 30 feet per minute.

An automatic closing unit. The bags themselves start the sewing operation when they reach the sewing head. After sewing is completed, thread is cut automatically and sewing action stops as conveyor belt continues to move bag.



Write for details and complete catalog-file of Fischbein Bag Closing Equipment.

**DAVE FISCHBEIN CO.,** DEPT. 4-B

2720 30th Ave. South, Minneapolis 6, Minn.

Name \_\_\_\_\_

Firm Name \_\_\_\_\_

Address \_\_\_\_\_

## Handles many jobs



### Box Cars

The Model H-25 carries 1 1/4-ton loads into or out of box cars with narrow 6-ft. doors.



### Trucks

Load or unload trucks — not only bulk materials, but barrels, drums, bales and other unit loads.



### Pallets

Quickly-mounted fork-lift is available, also pick-up sweeper and other special attachments and buckets.

## Handles many materials



### Castings

Small castings, lumps and similar loads are easily scooped up with regular bucket or tine-type buckets.



### Metal Scrap

Hydraulic grapple grips and holds large payloads of metal scrap and other hard-to-handle materials.



### Leather Scrap

The open or tine fork bucket is a "natural" for efficient handling of such hard-to-penetrate materials.

## Travels anywhere



### Outdoors

Large pneumatic tires provide traction and flotation even on unpaved ground. A "PAYLOADER" travels and works just about anywhere.



### Indoors

Through narrow doorways and aisles, up and down ramps, around obstructions, a maneuverable "PAYLOADER" goes and gets the job done.



### On Piers

"PAYLOADER" units are stevedoring specialists for unloading bulk materials—in ship holds and on the dock ... spot railroad cars too.



# PAYLOADER®

## a flexible material handling SYSTEM



### Versatile

A "PAYLOADER" tractor-shovel is a profitable investment for one specific application or for *many* uses — for the full-time production handling of *one* bulk material or for handling *different* materials and doing part-time jobs from one end of the plant to the other.

### Adaptable

A "PAYLOADER" requires no special and expensive installation... does not have to follow a definite path. It loads itself anywhere, travels anywhere, delivers any place. It works indoors or outdoors, on paved or unpaved areas — carries its payloads up ramps, through doorways, deposits its loads on floors or stockpiles, or in hoppers, bins, containers or trucks.

### Many Sizes — Many Attachments

Proven "PAYLOADER" tractor-shovels are available in many sizes and types — from 2,000 to 12,000 lb. carry capacity — to meet a wide range of production demands. Many attachments are also available to do special jobs — make a "PAYLOADER" a virtual material-handling system.

### New Capacity — New Performance

The Model H-25 is one of the new "PAYLOADER" units. Its carry capacity of 2,500 lbs. is 500 lbs. more than has ever before been provided for a tractor-shovel with only 6 ft. turning radius. It is full of other features that make it the *most* tractor-shovel anywhere near its size.

#### THE FRANK G. HOUGH CO.

731 Sunnyside Ave., Libertyville, Ill.

Send literature on the complete "PAYLOADER" line and attachments

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

5-A-3

# HOUGH®



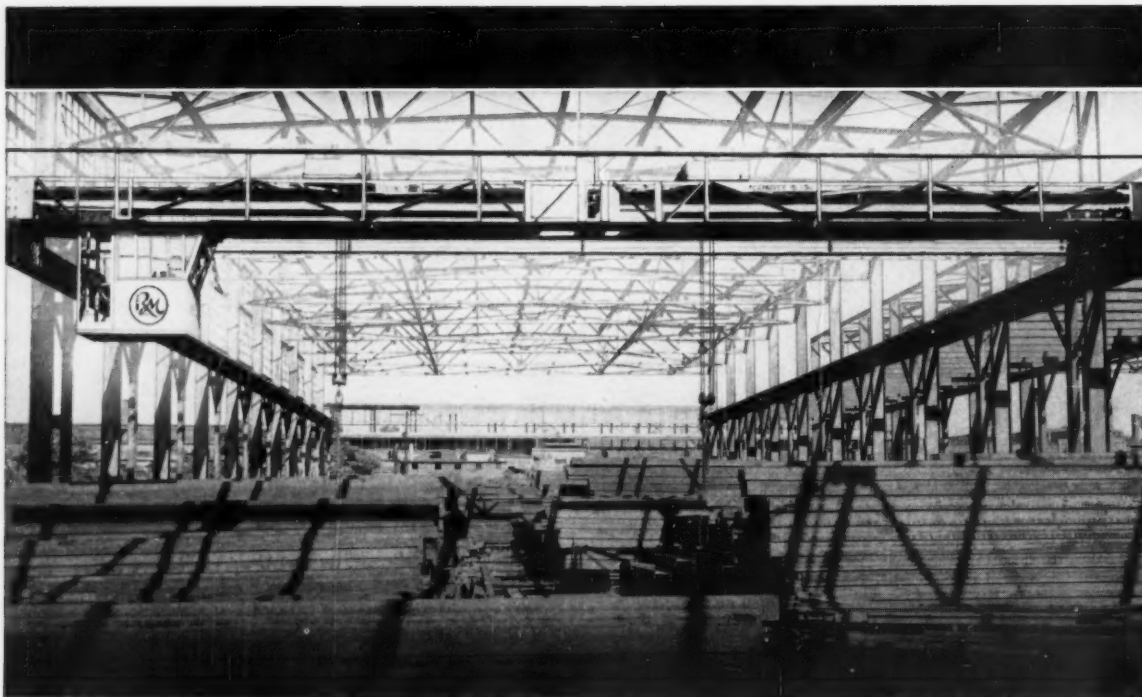
THE FRANK G. HOUGH CO.

LIBERTYVILLE, ILLINOIS

SUBSIDIARY — INTERNATIONAL HARVESTER COMPANY



## cranes that stay new



Robbins & Myers cranes have long, productive lives because they combine conservative engineering with quality construction materials—a combination that doesn't permit short-cut manufacturing. Carefully controlled standards are maintained for bridge deflection under load, rigidity, service factor. Your R & M crane is completely assembled and tested before shipment, then match-marked and doweled for perfect re-assembly in your plant. R & M builds standard cranes with capacities to 10 tons, spans to 65 feet; larger capacities and longer spans are available in custom designs.

Illustrated above: 15 ton capacity, two hoist, cab controlled crane. Span: 74½ feet. Bridge control: 6 step variable speed to 250 fpm. Trolley control: 4 step variable speed to 125 fpm.

Send today for our new bulletin describing single and double girder cranes in top-running and underhung designs.

*Robbins & Myers, Inc., Hoist & Crane Div., Springfield, O.*



take it up with

**ROBBINS & MYERS**  
hoists cranes



Request Bulletin 900

Circle 197 on Reader Service Card for more information

**MATERIAL HANDLING ENGINEERING**

Woolworth provides new proof—  
**DISOWHEEL** *lasts longer, cuts costs!*




Case History 44

At F. W. Woolworth's New York warehouse, a big victory in a long war against materials handling costs has finally been won.

First, to save floors, steel wheels had been prohibited! To preserve rubber tires, maximum loads were established. Still, replacements were excessive, especially on swivel wheels of straddle trucks. Rubber tires (*right, photo above*) "chunked out" within 3 months. Canvas wheels (*left*) proved noisy, and even less durable.

Finally, DISOWHEEL® (*center*) was tried. Result: *no appreciable wear after 8 months. After 18 months*

*trial—still with no replacements, no downtime—Woolworth's New York warehouse is equipping its entire fleet with DISOWHEEL...safe for floors, noise-free, and durable beyond compare!*

The key to DISOWHEEL success is in its tire, made of DISOGRIN®. This polyurethane elastomer is "strong as steel, resilient as rubber". It outlasts rubber and most synthetics 4 to 10 times...takes bigger loads, cuts power consumption—and won't damage floors. To keep your trucks running smoothly and economically, specify DISOWHEEL in pallet or press-on size—with the distinctive  imprint.

 **ISOGRIN**  
**INDUSTRIES**

510 SOUTH FULTON AVENUE, MOUNT VERNON, NEW YORK

Offices: Los Angeles • Boston • Chicago • Detroit • Cleveland • Washington • Distributors everywhere

Circle 67 on Reader Service Card for more information



## This kind of materials handling is fine (for Cambodia)

But you're not in Cambodia. You're here, and that's good. Because Roebling is here, too, with the complete line of wire rope slings for every lifting need.

All Roebling Slings (and there are many types in a wide range of sizes and capacities) are precision-made for stability under load ... uniform and consistent strength.

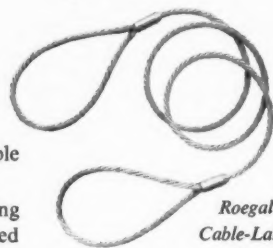
The All-Purpose Sling, for example, embodies the rolled loop and tapered sleeve attachment which, beside developing full catalog strength, makes it safe to handle; no servings, all wire ends are covered by the tapered sleeve. Further, the compact sleeve does away

with bulky spliced sections that reduce usable sling length.

Complete details on the major Roebling Sling types ... All-Purpose with Tapered Sleeve, Roegal® Cable-Laid and "Flatweave" ... are given in the Roebling Sling Book. This will be sent to you when you request it. Write to Wire Rope Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

Your Roebling salesman or distributor can be of large help on any matter dealing with slings. Make use of him.

**ROEBLING**  
Branch Offices in Principal Cities  
Subsidiary of The Colorado Fuel and Iron Corporation



*Roegal  
Cable-Laid  
Slings*



*Roebling  
"Flatweave"  
Slings*



# HYSTER ANNOUNCES THE ALL-NEW

# SpaceSaver **30 40 50**

with

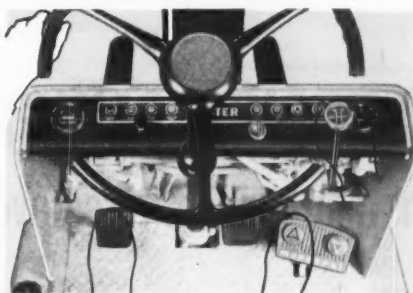
## monotrol

... the exclusive Hyster control system that sets a new standard for lift truck safety and performance.

**NEW** from the big cushion tires to the top of the rugged upright, Hyster SPACESAVER 30-40-50 (3000, 4000, 5000 lbs. capacity) Trucks *lift faster and maneuver quicker and easier* than any other trucks in their class. "Human engineered" by Henry Dreyfuss, industrial designer, for safety and operator efficiency.



See the new  
SpaceSaver Trucks  
with Monotrol in ac-  
tion at the Material  
Handling Show  
CLEVELAND—  
June 9-12



The revolutionary MONOTROL system for the first time eliminates unnecessary and unnatural driver motions. Forward-reverse and speed are *right* foot controlled by Monotrol pedal. Driver's hands are free for full-time steering and load control. Automatic parking brake is push-button controlled. Precision inching control with *left* foot pedal.

Write to

HYSTER COMPANY, P. O. Box 847,  
Danville, Illinois

## HYSTER®

INDUSTRIAL TRUCK DIVISION



MOVING AHEAD WITH INDUSTRY

Factories: Portland, Ore.; Danville, Ill.; Peoria, Ill.; Kewanee, Ill.; Glasgow, Scotland; Nijmegen, The Netherlands; Sao Paulo, Brazil; Sydney, Australia (licensee)

Circle 97 on Reader Service Card for more information



## REPUBLIC "50" HIGH STRENGTH STEEL PALLETS

### withstand temperatures over 900° at Anaconda Aluminum Company

Republic "50" High Strength Steel Pallets solved a particularly severe problem at the Anaconda Aluminum Company, Louisville, Kentucky, world's largest independent producer of aluminum foil.

Twelve-hour annealing cycles of aluminum coils at temperatures over 900°F. caused rapid deformation of the ordinary steel pallets previously used. This deformation damaged the edges of the aluminum coils, resulting in a serious reduction of foil yield. And because deformation of the pallets limited the height to which coils could be stacked, a storage problem was created.

The Republic "50" High Strength Steel Pallets have now been in service for over two years with no

sign of deformation. Conservative estimates place the life of the new Republic "50's" at ten years—five times that of previous pallets, with no damage to coils, no lost production time, no wasted materials.

The low alloy steel used in producing Republic "50's" has a minimum yield point of 50,000 psi and a minimum tensile strength of 70,000 psi. It is the combination of basic alloy steel and Republic's extensive heat treating experience that gives these pallets the extreme strength needed for the job.

Let the materials handling engineers of Republic's Berger Division work with you in solving your materials handling problems. Call your Republic representative or write direct.

Circle 149 on Reader Service Card for more information

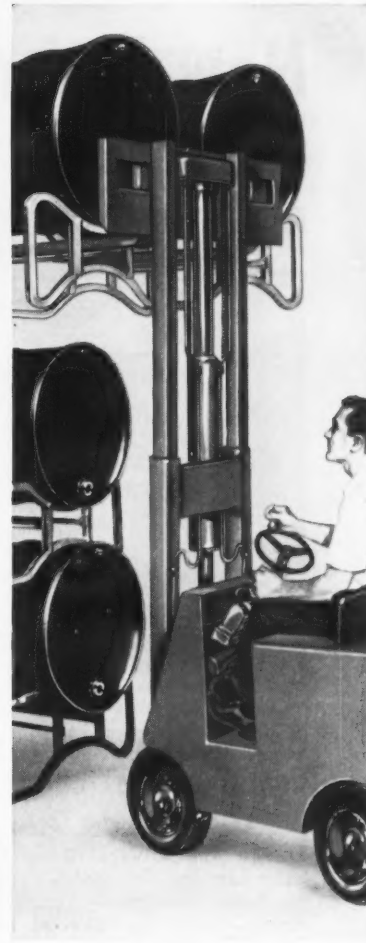
**MATERIAL HANDLING ENGINEERING**



**REPUBLIC WEDGE-LOCK® PARTS STORAGE UNITS** are easy to load or unload from either side. And, the heavier the load, the tighter the grip, because patented Wedge-Lock construction includes a post that will not buckle; a concealed sway-proof joint; and a reinforced shelf that does not sag. Unlimited shelf arrangements. World's strongest. Capable of exceptionally high stacking. Republic Storage Engineering specialists will help you plan. For complete details mail coupon.



**REPUBLIC PB-127 COLLAPSIBLE BOXES** lower the cost of storage or shipment of empty stacking boxes. Heavy-duty corrugated design delivers long, efficient service at lowest per-year cost. Boxes can be tiered when loaded or empty, collapsed or set up. All parts permanently attached. Ideally suited to shipping castings and other heavy items, the PB-127 Box offers up to 66% savings in storage space. Send coupon for complete information.



**NEW REPUBLIC DRUM RACKS** assure stacking of more in-use drums in less space and at lower cost than ever before. Each rack supports two loaded 55-gallon drums. Racks with drums can be stacked to any practical height. Standard fork-lift trucks can pick, move, and stack as many tiers of drums at one time as capacity permits. Shipped knocked down, with fasteners for quick and easy assembly. Send coupon for details.

# REPUBLIC STEEL



*World's Widest Range  
of Standard Steels and  
Steel Products*

**REPUBLIC STEEL CORPORATION**  
DEPT. MH - 7596  
1441 REPUBLIC BLDG. • CLEVELAND 1, OHIO

- ☐ Have a Materials Handling Engineer call  
Please send more information on the following:  
☐ Republic High Strength Materials Handling Equipment  
☐ Portable Drum Racks  
☐ PB-127 Collapsible Boxes  
☐ Wedge-Lock Parts Storage Units

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

# New Invention Picks Up 40 Cu. Yd. Detachable Containers . . . 15-Ton Loads



Dinosaur picks up in excess of 30,000 pounds of granular material, white line inside container indicates load has not shifted.

## DEMPSTER-DINOSAUR Combines Detachable Container Flexibility With Big Pay-Load Capacity

### Unlimited Capacity

The proven savings of mechanically handled detachable containers have now been expanded to cover long, over-the-road hauls. Two DINOSAUR models are available for this work. One, for tandem trucks, handles 30,000 pounds; the other, for single axle trucks, handles 22,000 pounds. Special off-the-road models are available for loads limited only by the capacity of the truck.

### For Docks and Flat Cars

Mechanically, the DEMPSTER-DINOSAUR is of extremely simple design. Components are a tipping frame, two hydraulic raise-and-lower cylinders and a double-acting cylinder which con-

trols all container movements. No chains, sheaves or cables are used in its operation. It is the only over-the-road system that can push and pull containers on and off docks or railroad flat cars. This makes it possible to use the DINOSAUR in conjunction with "boxy-back" containerized cargo rail shipments.

### Many Sizes and Types of Containers are Available

DEMPSTER-DINOSAUR standard containers come in 21 sizes ranging from 14½ feet to 23½ feet in length and 10 to 41 cu. yd. capacity. Special cargo containers up to 35 feet, tank-type and stake side models are also available. Drop-down telescopic legs to hold container at dock height are optional on some cargo containers.

### Free Booklet Offered

A free booklet which describes the operation of this new system in detail is offered by Dempster Brothers, the originator and only manufacturer of DEMPSTER-DUMPSTER Systems.

Mfd. By

Patents Pending

**DEMPSTER BROTHERS, Inc.**

Dept. F-6, Knoxville 17, Tenn.

Circle 60 on Reader Service Card for more information

## Containerized Cargo, Waste & Raw Materials Handled by DINOSAUR

The newly developed DEMPSTER-DINOSAUR is a system of materials handling that employs giant containers up to 40 cubic yards and larger. It lends itself to any situation where bulk accumulations of raw materials, liquids, waste or finished products must be handled. Since one truck and one driver can automatically pick up, haul and dump or set down a number of containers, the DINOSAUR easily does the work of several trucks.



Dinosaur backs up to loaded container and engages it with lifting bail.



Container is hydraulically pulled up inclined tilting frame.

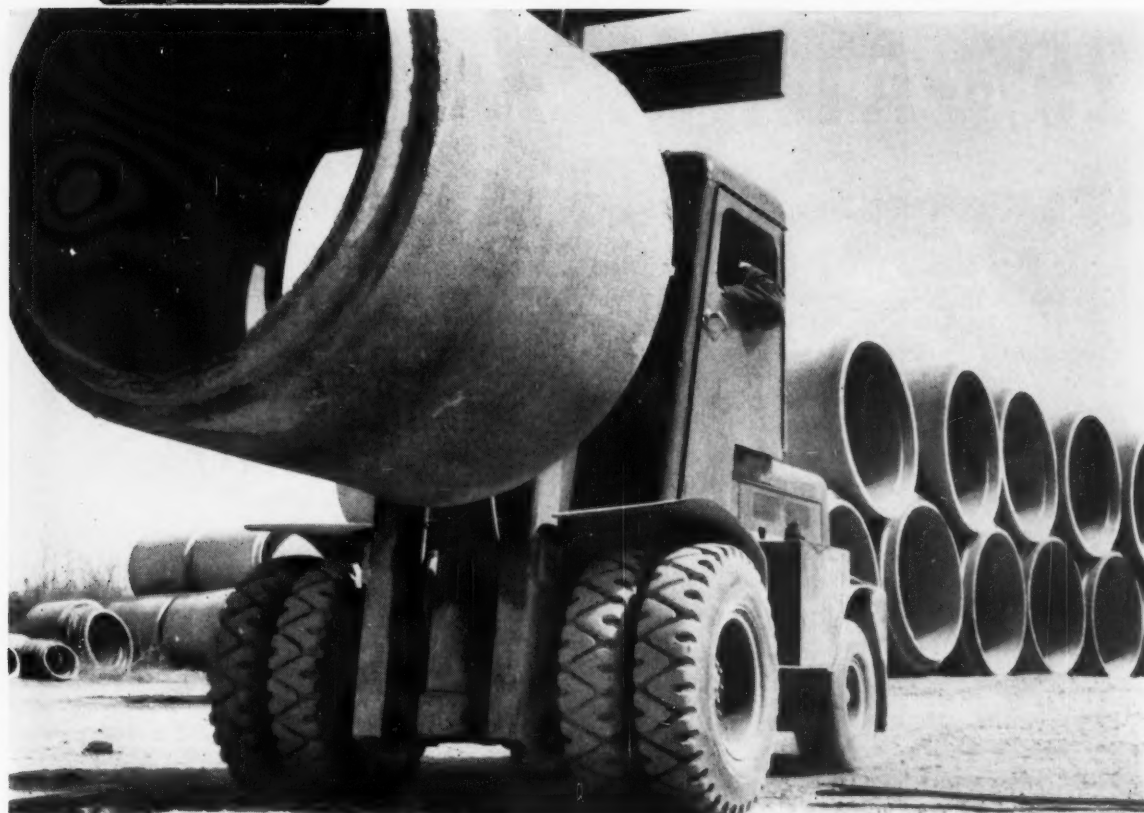


Container is pulled forward where it automatically locks into carrying position.



The Dinosaur hydraulically pushes a container off on a dock and inside a building for unloading.



**B.F. Goodrich****TW**  
TIRE AND WHEEL**Analysis Man reports...**

## **B.F. Goodrich "Wired" tires give 5 times the service of other makes, still going strong!**

**Problem:** Lift truck tires used at Toledo Concrete Pipe Co. blew out 2 and 3 times a month, lasted only 6 months. The trouble was caused by scraps of wire reinforcing rods used in pipe construction. Tire and maintenance costs skyrocketed.

**Solution:** The B.F. Goodrich Tire and Wheel Analysis Man studied the company's complete materials handling setup—then recommended tires designed for this type of work: new B.F. Goodrich "Wired" tires. A special shield of steel wire mesh under the tread protects the tire body from punctures and blowouts.

**Results:** "B.F. Goodrich 'Wired' tires have been in use 2½ years and to date there have been no repairs," writes Plant Supt. Raymond L. Edwards. In addition, the company has saved 200% on tire costs.

This report is typical of the savings B.F. Goodrich TW Analysis Men can make for industrial tire users. Their services are without cost or obligation—their recommendations unbiased because B.F. Goodrich makes a complete line of industrial tires. To find out how you can save, mail the coupon today. A special consulting service is available to manufacturers of materials handling equipment.

*The B.F. Goodrich Company  
Department TW-773, Akron 18, Ohio*

I would like further information on your FREE TW Analysis.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

STREET \_\_\_\_\_

CITY \_\_\_\_\_ ZONE \_\_\_\_\_ STATE \_\_\_\_\_



*Specify B.F. Goodrich  
tires when ordering  
new equipment*

# **Smileage!**

# **B.F. Goodrich industrial tires**

Circle 86 on Reader Service Card for more information

JUNE, 1959

# EXTENDS BATTERY LIFE 25%-AT NO EXTRA COST!



the  
new  
**gould**  
*SILCONIC*  
plate

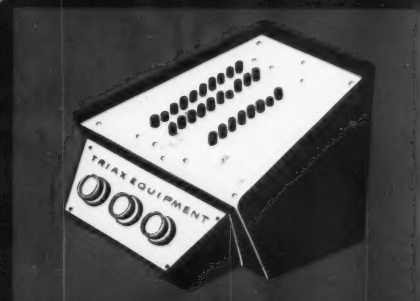
**IN ALL  
MOTIVE  
POWER  
BATTERIES**

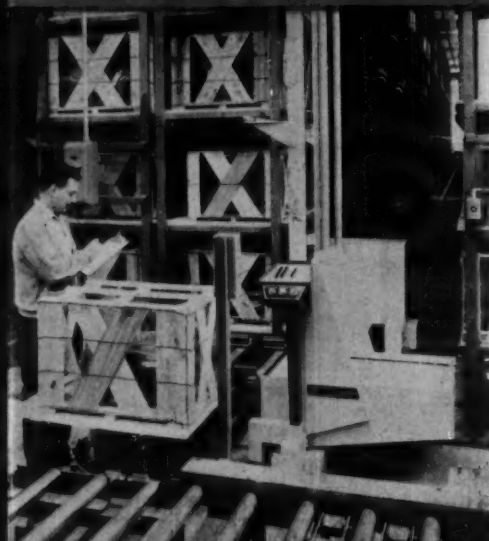
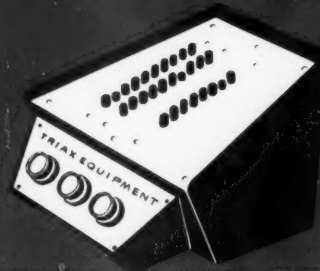
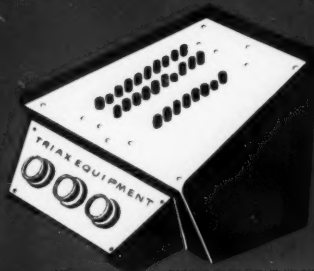
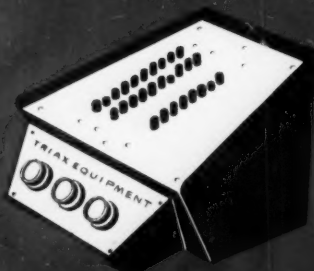
Write for catalog GB-1876  
GOULD-NATIONAL BATTERIES, INC.  
Trenton 7, New Jersey

Circle 82 on Reader Service Card for more information

MATERIAL HANDLING ENGINEERING

**ANNOUNCING** a new  
development of major  
importance in push-key  
storage and delivery of  
heavy loads with precise  
selectivity





4800 COMPARTMENTS OF UP TO 3500 POUNDS CAPACITY EACH . . . at the finger-tip command of one operator for loading, unloading, and delivery to or from a central terminal point. Packed into 5100 square feet of floor area. The new TRIAX TWO-WAY RETRIEVER SYSTEM . . . opening new dimensions in handling and storage efficiency and economy.

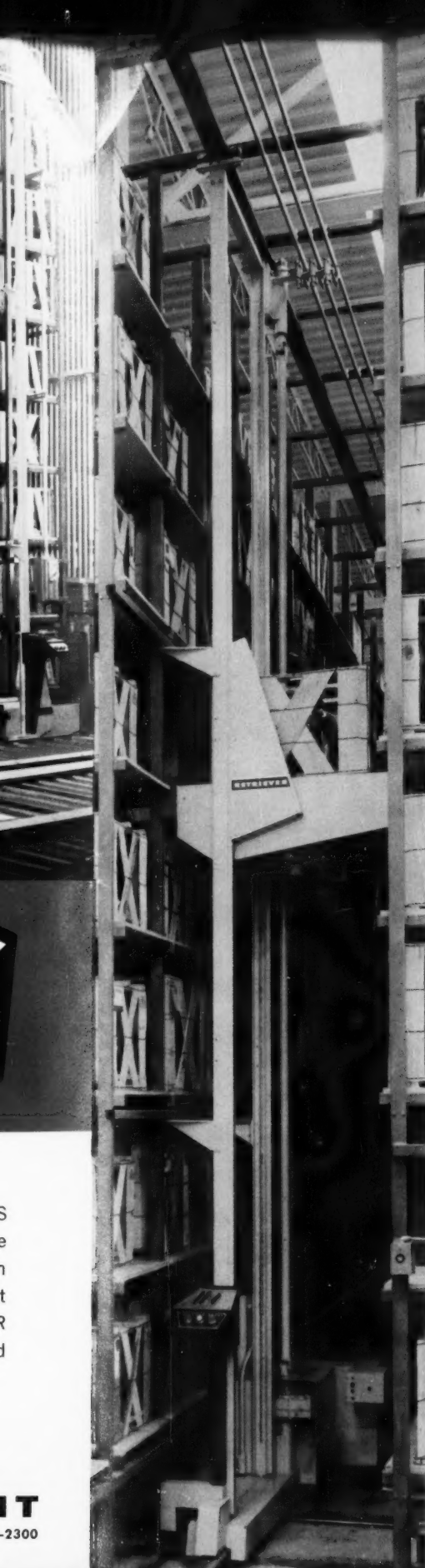
**TRIAX EQUIPMENT**

3921 MAYFIELD ROAD

CLEVELAND 21, OHIO

EVERGREEN 2-2300





## **TRIAX Retriever Push-Key System Delivers Loads To Or From 4800 Openings At One-a-Minute Rate**

The new push-key Retriever storage and handling system developed by Triax Equipment, Cleveland, delivers heavy loads to or from any of 4800 storage compartments at the average rate of one load every minute.

The new "two-way Retriever" system automatically transports these loads to or from a central loading dock entirely at the touch of selective electrical controls, and requires less than one-half the floor area used by conventional storage methods.

The new system is specifically designed for enlargement to provide selective delivery of any desired volume of material to and from a central loading area, entirely through use of electrical controls.

Travelling carriers or Retrievers move horizontally along narrow aisles, then vertically to deposit or remove loads from tiers of compartments on both sides of each aisle. A push-key panel at the end of each aisle provides for selectivity in loading or unloading specific compartments.

At the end of the 150-foot aisles, loads are transferred to or from roller conveyors by mechanical means, for delivery to the loading dock or to the Retriever unit for storage.

One man can handle the entire system without touching the loads involved, and extension of this one-man pushbutton control to a larger storage area is merely a matter of adding more units to the system as desired.

Material for storage can be loaded on skids or pallets, in pans or boxes, and dimensions of the individual compartments are tailored to meet any needs.

For requirements demanding a high degree of selectivity in storing or delivering heavy loads, we believe the new two-way Retriever system opens new fields in efficient and economical handling of large volumes of materials. It also reduces breakage and increases safety margins.



# **TRIAX**

Circle 175 on Reader Service Card for more information

# THE MATERIAL HANDLING INSTITUTE

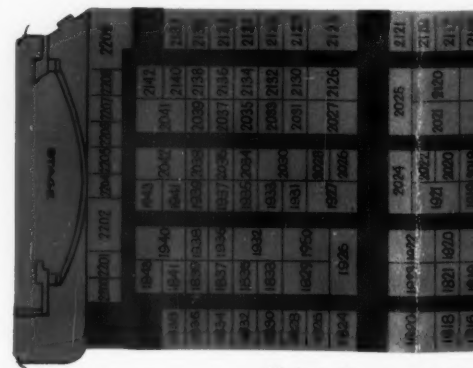
## FLOOR PLAN AND LIST OF EXHIBITORS

### LIST OF EXHIBITORS

EXHIBITOR	BOOTH
Acme Steel Company.....	1415
Albion Industries, Inc.....	420
Alden Systems Co.....	2134, 2136
Alemite Div., Stewart-Warner Corp.....	2007
Algene Marking Equipment Co.....	1906
The Allen Iron & Steel Co.....	1823
Allis Chalmers Mfg. Co.....	1010
American Chain & Cable Co., Inc.....	910
American Dockbridge, Inc.....	1833, 1835
American Metal Products Co.....	1932
American MonoRail Co.....	1409
The American Pulley Co.....	1137
Anchor Coupling Co., Inc.....	402
Anchor Steel and Conveyor Co.....	121
Apex Welding & Fabricating Corp.....	1921
Armed Forces.....	1830, 1832, 1834, 1836
Atlas Crane Co.....	1933
Austin-Western Works.....	1509
Automatic Transportation Co.....	1001, 600, 707
Baker Industrial Trucks.....	1504
Ballinger-Meserole Co.....	A-1013
Barrett-Cravens Co.....	A-1004
The Bassick Co.....	202
Beacon Machinery, Inc.....	2137
Beam Products Mfg. Co.....	1829
Beacat Tire Co.....	A-1022
Benton Harbor Engineering Works, Inc.....	1104
Berg-Gibson Mfg. Co.....	103
Bond Foundry & Machine Co.....	434
Bosworth Manufacturing Co.....	2126
Brainard Steel Division, The Sharon Steel Corp.....	2209
Broderick & Bascom Rope Co.....	1908
Brooks & Perkins, Inc.....	1936, 1938
H. L. Bushman Co., Inc.....	117
The E. W. Buschman Co.....	1050
C & D Batteries, Inc.....	1200
C.I.T. Corporation.....	1512
Cascade Mfg. Co.....	1061
Chain Belt Co.....	1813
Chicago Tramrail Corp.....	1926
Chisholm-Moore Hoist Div., Columbus McKinnon Chain Corp.....	1922
Clark Door Co., Inc.....	1931
Clark Equipment Co.....	900, 901, 1106, 1300, 1610
Clarke Floor Machine Co.....	2033
The Cleveland Crane & Engineering Co.....	100
Clinch-Tite Corp.....	2204
Coles Cranes, Inc.....	1501, 1606
The Colson Corp.....	210
Conco Engineering Works.....	1913
Continental Motors Corp.....	1511
Conveyor Div., Columbus McKinnon Chain Corp.....	2125
Crescent Metal Products, Inc.....	1316
Crown Controls Co., Inc.....	1816
Cushman Motor Works, Inc.....	2016
Dearborn Fabricating & Engineering.....	2131, 2133

EXHIBITOR	BOOTH
Dempster Brothers, Inc.....	1400
Doerr Electric Corporation.....	2300
Drott Mfg. Co.....	1602
Duff-Norton Co., Jack Division.....	2038
Duff-Norton Co.....	2042
Coffing-Hoist Division.....	2208
Economy Engineering Co.....	2208
Thomas A. Edison Industries Storage Battery Division.....	507
Equipment Mfg. Inc.....	2022
Aurora Equipment Co.....	2121
The Electric Storage Battery Co.....	902
The Elwell-Parker Electric Co.....	1000
Ensign Corburetor Co.....	1920
Equipto Division, Aurora Equipment Co.....	2121
Erickson Power Lift Trucks, Inc.....	R-1500
Esco Products Co.....	221
Essex Conveyors.....	1916
The Euclid Crane & Hoist Co.....	101
Euclid Division, General Motors Corp.....	1809
Evans Products Co.....	A-1024
Exide Industrial Div., Electric Storage Battery Co.....	902
Fab-Weld Corporation.....	1521
The Fairbanks Co.....	2107
Faultless Caster Corp.....	116
Foote Bros. Gear and Machine Corp.....	2025
Fronmelt Industries.....	1812
Gascoignes Industries, Inc.....	2127
General Box Co.....	1937, 1939
General Electric Co.....	404
Globe Hoist Co.....	2041
Bernard Gloekler North East Co.....	1525
Gould-National Batteries, Inc.....	1421
Greer Hydraulics, Inc.....	2308
Grove Mfg. Co.....	1607
Harnischfeger Corp.....	1136
Hartman Metal Fabricators, Inc.....	804
Heifred Co.....	1820
Hercules Motors Corp.....	1519
Hertner Electric Co.....	501
Hettrick Mfg. Co.....	2028
Hinchcliff Hardwood Lumber Co.....	1003
Hoover Ball & Bearing Co.....	1927
The Howe Scale Co.....	1837, 1839
Hughes-Keenan Div., U.S. Air Conditioning Corp.....	1062
The New York Air Brake Co.....	1124
Hyster Co.....	1601, 1402, 1022
Hytral Conveyor Co., Inc.....	2117
Ingersoll Kalamazoo Div., Borg-Warner Corp.....	1412
Insul-B Corp.....	801
Ironbound Box & Lumber Co., Inc.....	1940
Island Equipment Corp.....	1423
Jarvis & Jarvis, Inc.....	416
Joy Mfg. Co.....	1305
The Joyce-Cridland Co.....	1928
K-W Battery Co., Inc.....	1306
Kalamazoo Mfg. Co.....	1032
Kelley Co., Inc.....	1011
The Knickerbocker Co.....	1431
Koehring Co.....	1401

EXHIBITOR	BOOTH
LaMarche Mfg. Co.....	431
Lamson Mobilift Corp.....	R-1504
F. H. Langsenkamp Co.....	1824
Lansing Co.....	2026
Lathrop Paulson Co.....	1135
G. B. Lewis Co.....	218, 225
Lewis-Shepard Products, Inc.....	1304, 200
Lift Trucks, Inc.....	105
Link-Belt Co.....	1502
Little Giant Products, Inc.....	316
F. J. Littell Machine Co.....	2111
Logan Co.....	806
Loomis Machine Co.....	505
The Loudon Machinery Co.....	300
Lynch Corp.....	2116
M-B Corp.....	2307
MacWhyte Co.....	2008
Magline Inc.....	1052
Magnesium Co. of America.....	2027
Magnesium Service Co.....	2138
Manning, Maxwell & Moore, Inc.....	1056
Mansaver Industries.....	206
Marsh Stencil Machine Co.....	808
Martin-Decker Corp.....	1060
Martin Engineering Co.....	1828
Massey-Ferguson Industrial Division.....	1841
Mathews Conveyor Co.....	1917
May-Fran Engineering, Inc.....	212
Mechanical Handling Systems, Inc.....	300
The Mercury Mfg. Co.....	1220
Metropolitan Wire Goods Corp.....	2034
Molded Fiber Glass Tray Co.....	113
Morse Chain Co.....	R-1501
Motor Generator Corp.....	2108
Motorola, Communications & Electronics, Inc.....	220
The Moto-Truc Co.....	130, 131, 120
Chester Hoist Div., The National Screw & Mfg. Co.....	430
National Vulcanized Fibre Co.....	1912



MAIN AREA located directly above Main

SEE OTHER SIDE

... for an introduction to TRIAX RETRIEVER

# STITUTE'S EXPOSITION OF 1959

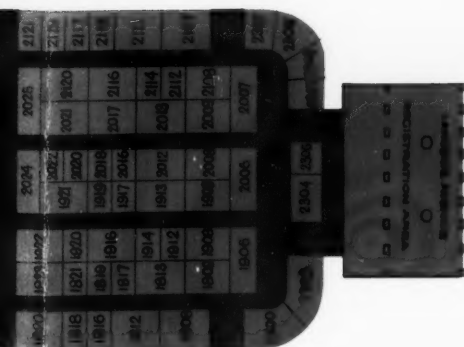
## T OF EXHIBITORS

EXHIBITOR	BOOTH
National Wooden Pallet Mfrs. Assn.	319
Nestier Corp.	2012
Nutting Truck & Caster Co.	1036
The Ohio Galvanizing & Mfg. Co.	129
Orangeville Mfg. Co.	1808
Oxy-Catalyst, Inc.	A-1010
The Paltier Corp.	1058
Parker Hannifin Corp.	1510
Parker Sweeper Co.	1819
The Powell Pressed Steel Co.	706
The Prime Mover Co.	2036
R & K Industrial Products, Co., Inc.	2031
Rack Engineering Co.	A-1105
Rack Manufacturers Institute	2112
The Rapids-Standard Co., Inc.	1508, 1119
The Raymond Corp.	1515
The Ready-Power Co.	1134
Republic Steel Corp.	702
Revolvator Co.	1516
Richards-Wilcox Mfg. Co.	1414
Robbins & Myers, Inc.	1405
Rotary Lift Co.	800
Rowe Methods, Inc.	2009
Ruger Equipment, Inc.	128
J. C. Smith, Inc.	802
SI Handling Systems, Inc.	1817
Sage Equipment Co., Inc.	1329
Saginaw Products Corp.	2030
The Service Recorder Co.	2306
Signode Steel Strapping Co.	A-1015
Silent Hoist & Crane Co., Inc.	1040
Southworth Machine Co.	2303
Spaulding Fibre Co.	1312
Springport Steel Products Co.	1102
Stackbin Corp.	A-1018
Standard Conveyor Co.	1941
The Stanley Works	1330
Stephens-Adamson Mfg. Co.	2007
Stokvis-Multiton Corp.	2304
Storage Products Corp.	1135
Streator Dependable Mfg. Co., Inc.	R-1502

EXHIBITOR	BOOTH
Task Master, Inc.	2130
T & S Equipment Co.	2310
G. H. Tennant Co.	1433
Tier-Rack Corp.	2309
Toledo Scale Corp.	2037
Tote System, Inc.	1514
Towmotor Corp.	1302, 1404, 1307
Trempla Mfg., Inc.	1826
Triax Equipment	101
Tri State Engineering Co.	
Cartogainer Div.	1217
Tube-Strut Corp.	700
The Union Metal Mfg. Co.	1130
Union Asbestos and Rubber Co.	1605
United States Steel Corp.	2202
Union Steel Products Co.	500
Unistrut Products Co.	A-1020
United Shoe Machinery Corp.	204
United States Steel Supply Div.	
United States Steel Corp.	2200
Universal Hoist Co.	2206
Vac-U-Lift Co.	A-1017
Vanguard Engineering Co.	2021
Vickers, Inc.	1427
H. S. Watson Co.	2120
Waukesha Motor Co.	1320
Wayne Mfg. Co.	222
The Wayne Pump Co.	1909
John Waldron Corp.	121
Warehouse Storage Systems,	
Div. of Hatfield Industries, Inc.	2140
Jervis B. Webb Co.	1417
Weber Addressing Machine Co.	2013
West Bend Equipment Corp.	328
Westinghouse Electric Corp.	A-1000
Whiting Corp.	1500
Woodford Mfg. Co.	2024
The Yale & Towne Mfg. Co.	
1110, 1408, 1115, 1603	
Zenith Carburetor Div.	
Bendix Aviation Corp.	2114

PUBLIC AUDITORIUM  
CLEVELAND, OHIO  
JUNE 9-11, 1959

### MATERIAL HANDLING ENGINEERING



ARENA  
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MAIN EXHIBIT HALL

EVER, a new development in push-key storage and delivery. For details

ORIMUM  
OHIO  
2

... BOOTH 1100

HALL

ARCADE

UPPER  
LAKESIDE  
HALL

LOWER LAKESIDE HALL

LAKESIDE  
LOADING  
DOCK

## *Material Handling Engineering*

ESTABLISHED IN 1945 AS FLOW

812 HURON ROAD • CLEVELAND 15, OHIO

visit the TRIAX Equipment exhibit... Booth 101 at the MHI Show.



# AUTOMATIC Transporters

*Versatile... Compact...  
Powerful...*

**and how they'll cut  
your handling costs**

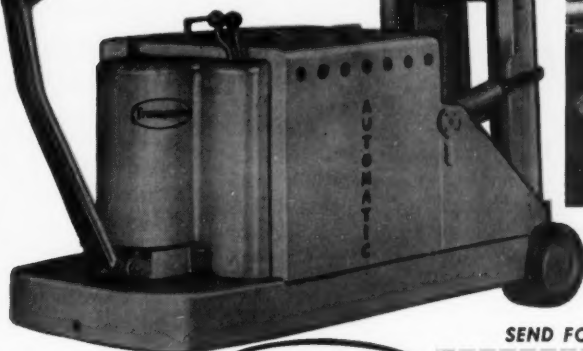
For the 1001 jobs that a walkie-type truck can do, it's your best materials handling buy. Naturally, it costs much less than a rider-type truck. So, the same money buys you more units...mechanizes more jobs with greater plant efficiency. The walkie costs less to operate...works easily in areas unsafe or too crowded for rider-type trucks, yet performs essentially the same functions.

## Find exactly what you need in Automatic's Complete Transporter Line

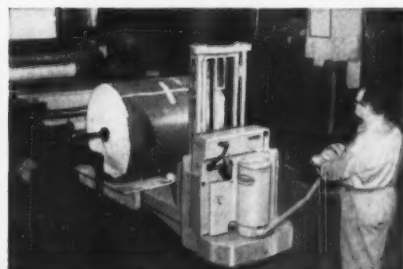
Automatic's 50 standard models...which include low-lift pallet and platform models, counterbalance-type stackers, straddle and platform-type stackers, and tractors...can be varied to satisfy the most highly specialized requirements. And you can have your Transporter on lease or budget purchase terms if you wish.



**High stacking** for pallet racks or unit loads, yet easily enters low over-the-road trucks. Only Automatic offers the NEW SKYLIFT Mast...68" mast lifts 144" ...for cantilever-type stackers in 2000 lb. and 3000 lb. capacities. WST Models in 1000 to 4000 lb. capacities.



**Straddle stackers** handle loads in extremely narrow aisles. Load carried on forks between outrigger arms...eliminates counterweight. Model WAT, capacities 2000 lbs. and up.



**High-lift Platform Stacker** spots bulky skidded loads. Model WLT, capacities 2000 lbs. and up.



*Advanced Materials Handling  
At Less Cost To You*

## AUTOMATIC TRANSPORTATION COMPANY

Division of The Yale & Towne Manufacturing Company  
141 West 87th Street—Dept. H-9—Chicago 20, Illinois  
WORLD'S LARGEST EXCLUSIVE BUILDER OF ELECTRIC-DRIVEN INDUSTRIAL TRUCKS

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Division of The Yale & Towne Manufacturing Company  
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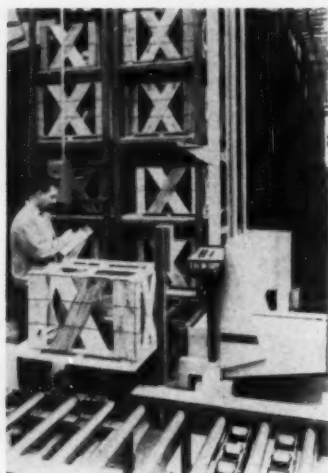
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City & Zone \_\_\_\_\_ State \_\_\_\_\_

Circle 20 on Reader Service Card for more information

# HANDLING 'ROUND THE COUNTRY



ONE MAN handles the whole storage operation with a push-key control at the end of each aisle. A roller conveyor brings load to be stored. Average time for moving a load to storage is one minute.

## Retriever Finds, Picks, Returns Stored Loads

The Retriever system of storage has been expanded so that it can deliver loads up to 3500 pounds to or from 4800 storage compartments at the rate of a load a minute. Manufactured by Triax Equipment, Cleveland, the Retriever is an electrically operated carrier that moves horizontally along an aisle on a rail, then rises to deposit or remove a load from tiers of compartments.

In the new system, the Retriever loads and unloads from openings on both sides of narrow aisles. An operator uses a push-key panel at the end of each aisle for selecting the specific compartment.

A load to be stored is received from a roller conveyor and moved to a mechanical transfer table. The carrier picks it up, carries it along the aisle until it reaches the proper tier of compartments. Then it rises to the height of its destined compartment and places the load.

The newest installation has four aisles, each lined with compartments up to 21 feet. The longest aisles are 150 feet long and 42 inches wide. Each has 1008 compartments extending three feet back from the aisle. The compartments are eight high, each with a two-foot-square opening. Two 110-foot aisles contain 1392 compartments each, for 12-high stacking.

"Because the Retriever stacks loads above normal heights and eliminates need for wide aisles, this entire unit of 4800 storage compartments requires only 5005 square feet of space," says George R. Johnson, Triax general manager.

## Doubles Container Fleet

Spector Freight System, Inc., Chicago motor freight carrier, is extending its schedule of container shipments to additional cities. Ac-



cording to W. Stanhaus, president, Spector will double the size of its container fleet.

These containers are loaded on an over-the-road chassis in pairs in place of the usual van. Material handling equipment such as the fork lift truck illustrated does the loading.

"We will launch container service to Rockford, Ill.; Milwaukee, Wis.; and Worcester, Mass., early this spring," Stanhaus said.

## Ore Feeding Conveyor Proposed

Lake-to-mill ore handling has been proposed for Cleveland's steel plants. A conveyor belt system would run from Lake Erie's lake-front to three steel companies in the Cuyahoga River Valley.

According to the Cleveland Plain Dealer, cost of the new development was unofficially estimated at 25 to 35 million dollars for the conveyor and machinery alone. Riverlake Belt Conveyor Lines, Inc., has been joined by the Pennsylvania Railroad Co. in supporting this proposal.

Steel companies interested in the project would be the Republic Steel Corp., the Jones & Laughlin Steel Corp., and the United States Steel Corp.'s American Steel & Wire Div. All have plants in the valley.

Two different routes and belt systems will be considered. Both

include a canopy-covered conveyor system, using two four-foot belts. The conveyor would be elevated over tracks and streets; otherwise it would run on the ground.

## Distributor Appointments

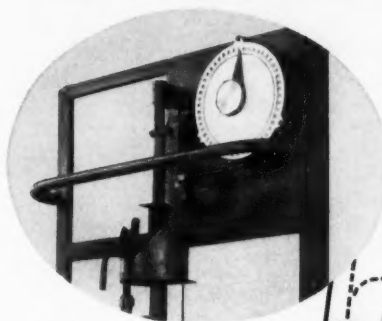
Three regional distributors have been announced by the **National Metal Edge Box Co.** The **Union Paper & Twine Co. of Michigan** (Detroit) will cover the eastern half of Michigan; **The Muscogee Paper Co.** (Columbus, Georgia) will cover that area; and the **Chicago Paper Co.** (Chicago) will handle the metropolitan area of that city.

Bruno J. Sartini has joined **Anzor Corp.** as vice-president. Anzor is a new material handling equipment distributor located in Cleveland. Sartini was formerly sales manager of Ohio Equipment Co.

# Introducing the new Automatic

# "600" S-WITCH-CART

and a revolutionary low cost materials handling system  
that will drastically increase your profits!

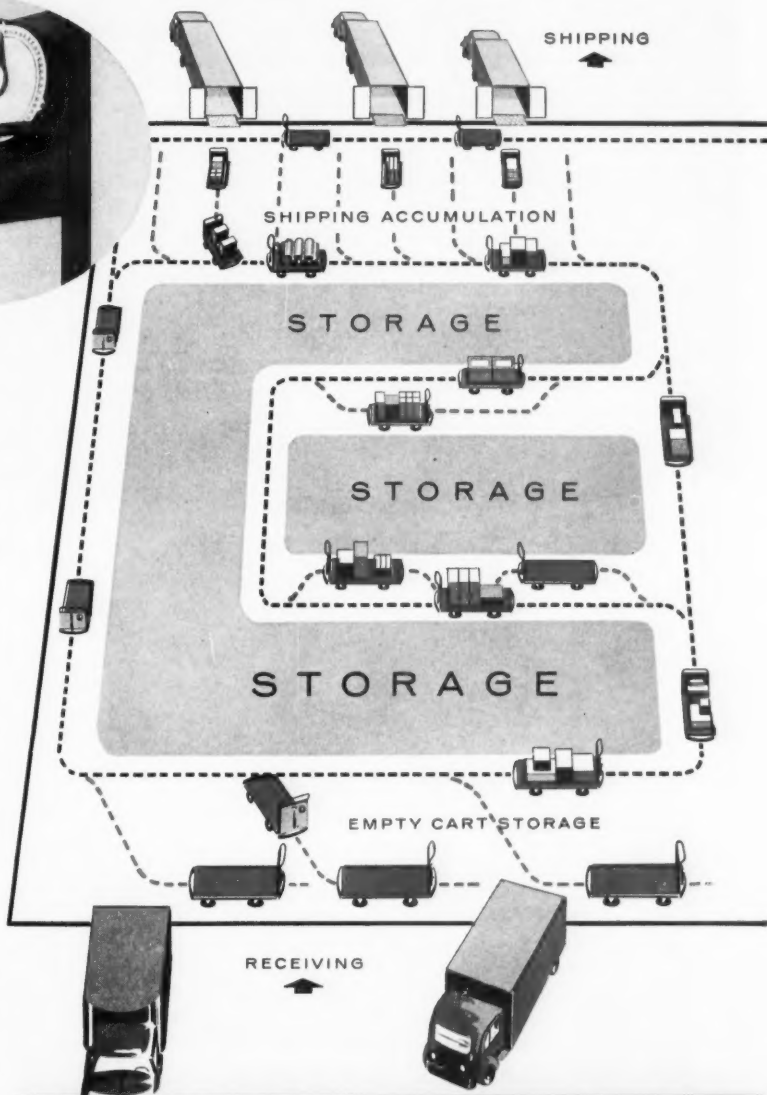


Here's the first fully automatic,  
mechanically controlled cart-handling  
system for tow line conveyors!  
A major advance in reduced costs  
... faster handling.

Simply load the cart ... set the dial  
... put on tow line. The  
S-WITCH-Cart "600" does the rest —  
automatically dispatches itself to its  
destination and switches off of the  
tow line. After unloading, a second  
setting of the dial returns the cart  
to the "empties" line at  
the loading point.

That's just one of many operating  
sequences, of course! S-WITCH-Cart  
"600" Systems can be laid out for  
station-by-station loading of stock —  
and automatically sent to a  
pre-selected shipping area.

In fact, the S-WITCH-Cart System  
has unlimited possibilities for truly  
"AUTOMAGIC" materials handling  
in warehousing, manufacturing  
and freight handling operations.



TO SEE WHAT S-WITCH-CART  
CAN DO FOR YOU,  
WRITE OR PHONE

## SI Handling Systems, Inc.

P. O. BOX 70 • EASTON, PENNSYLVANIA

Blackburn 3-4145

Circle 158 on Reader Service Card for more information

# POWERFUL *L-S*® Drive Units

give you

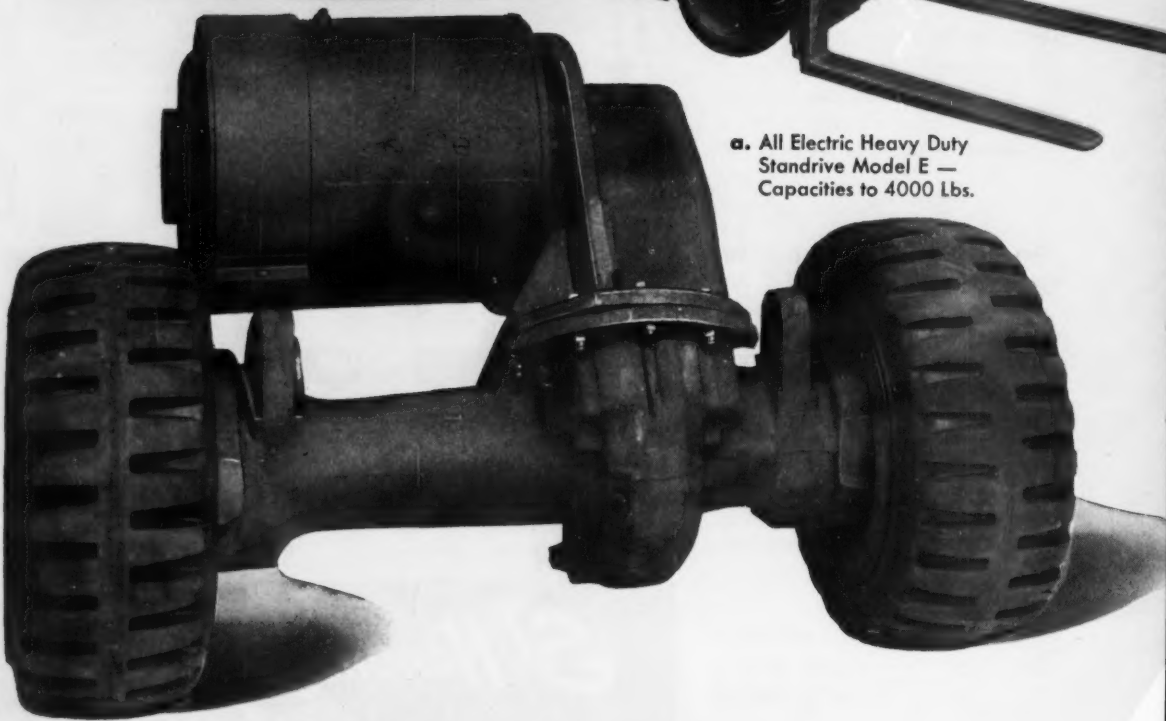
## FAST ACCELERATION . . . GREATER TRACTION

Transporting and maneuvering heavy loads again and again — 8, 16 or 24 hours a day requires a tremendous amount of power and drive. A fork lift truck must give superior service to meet the increasing demands for equipment to handle more and more goods — faster and faster.

To furnish the powerful tractive effort required to meet these severe duty cycles, Lewis-Shepard manufactures its own traction drive units — designed exclusively for rugged lift truck service.

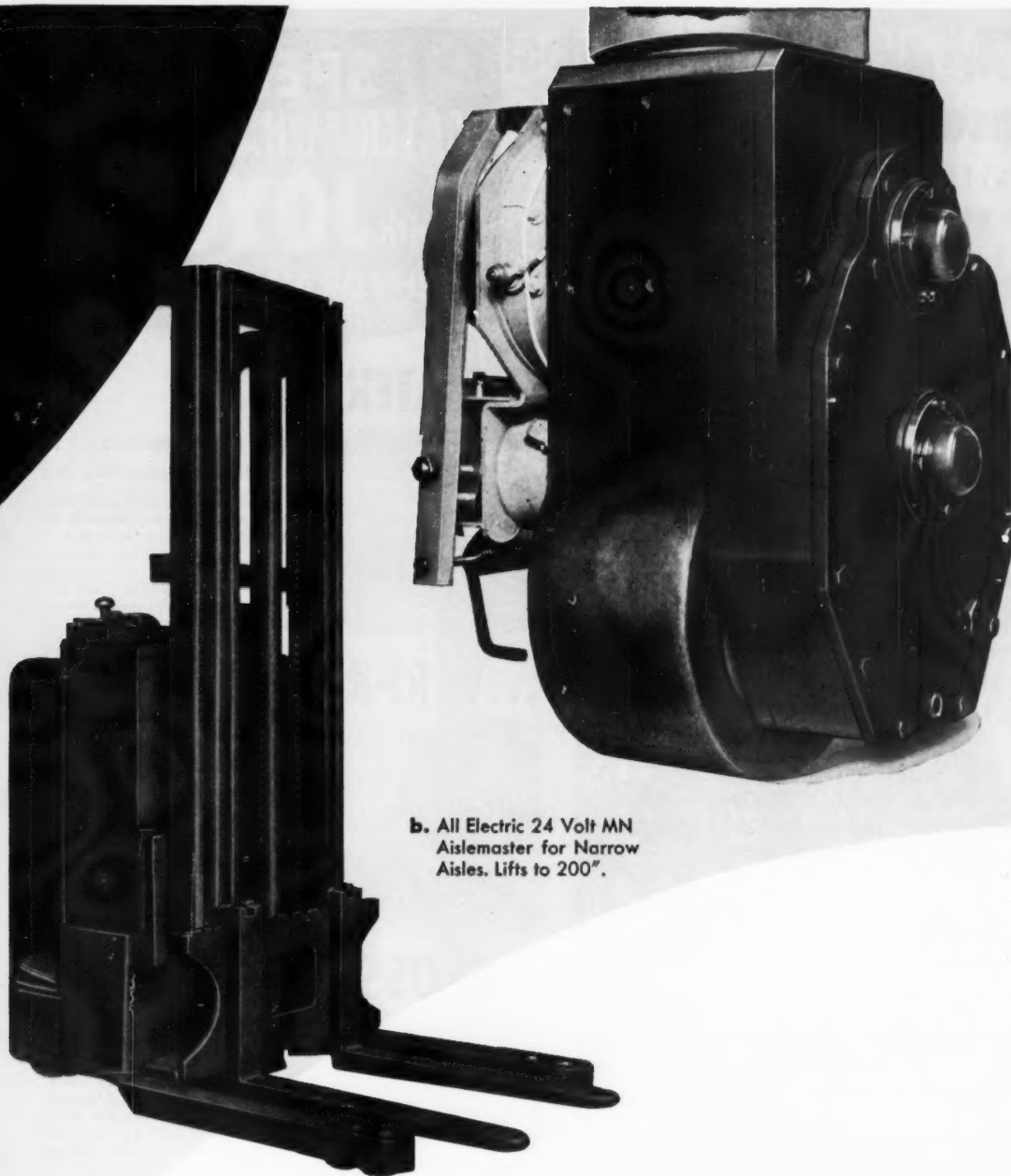
The heavy duty traction motor, precision gear drive, lubricated-for-life bearings, braking system, rugged drive wheels and steel housing are designed as one compact unit. Engineered with years of lift truck experience, this unitized drive provides maximum tractive effort and the optimum in travel speed and fast acceleration. All components are precision made for smooth, quiet operation.

These powerful traction drive units are one of the lifetime economies of a Lewis-Shepard truck. Specify the quality line — order a Lewis-Shepard truck the next time you buy.



a. All Electric Heavy Duty  
Standrive Model E —  
Capacities to 4000 Lbs.





**b. All Electric 24 Volt MN  
Aislemaster for Narrow  
Aisles. Lifts to 200".**

**L-S**

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*The MASTER® Line — The COMPLETE Line of Materials Handling Equipment*

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Please send me your complete L-S MASTER® LINE Catalog

Please send me information on Lewis-Shepard Truck: ☐ a. ☐ b.

Please have an L-S Representative call

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# The MARTIN-DECKER Sensater Crane Scale

FRICITIONLESS OPERATION  
GREATEST ACCURACY



**"EMDEE SAYS"**  
CONSIDER THESE  
MARTIN-DECKER CRANE  
SCALE ADVANTAGES.

**EASY HANDLING**—Light weight and Compact. Full 360° Hook Rotation permits swiveling in any direction.

**MORE CONVENIENT**—Manual Tare Adjustment zeros-out grabs, hooks, chains, tote boxes, etc. Minimum Headroom Loss.

**EASY READING**—Adjustable Gauge can be tilted up or down. Dual Range Dial provides accurate distant and close reading. Entire Dial Circumference Calibrated for precise readability.

**SAFER**—Five-to-one safety factor allows ample overload margin. **LOWER IN COST**—Averages lower in price than hook scales of comparable capacities.

*1,000 to 20,000 lb. CAPACITIES.*

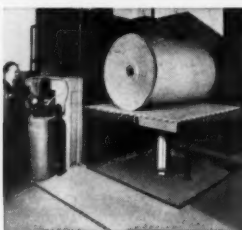
FOR FURTHER INFORMATION WRITE TO  
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3431 CHERRY AVE., LONG BEACH 7, CALIF. DEPT. N-27

**MARTIN-DECKER CORP.**  
HOME OF THE WEIGHT INDICATOR — LONG BEACH, CALIFORNIA

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## SPEED MATERIAL HANDLING with JOYCE HYDRAULIC...

### ...MATERIALIFTS



**save floor space...  
save manpower**

Joyce single or multiple post "Materialifts" will be engineered to fit your requirements as to size and type of platform, lifting capacity and type of controls. Available with air-oil or electric pumping unit operation . . . always locked on oil for greatest safety.

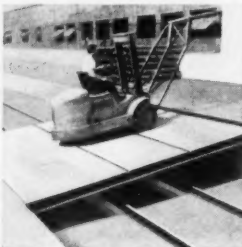
### ...VARI-RAMPS



**simple to install...  
economical to operate**

These compact units feature roll-over capacities to suit. Available in two types . . . electric pumping unit and air-oil operated . . . push button, hand or foot valve control . . . automatic leveling. Joyce "Vari-Ramps" are manufactured with platform sizes and vertical movements to your specific requirements.

### ...CROSS-OVER BRIDGES



**custom built to meet  
your requirements**

Joyce cross-over bridges are available in the following styles, Bascule type, Vertical rise type and Horizontal rotating type. They are available with platforms of shape, size and capacity to meet your requirements . . . full hydraulic air-oil or electric pumping unit operation . . . push button, hand or foot valve control.

**SEE US AT BOOTH NO. 1928**

**Material Handling Institute Exposition for 1959**  
Cleveland, Ohio • June 9-12



**WRITE TODAY FOR  
COMPLETE INFORMATION!**

IN CANADA: Midland Foundry  
& Machine Co., Ltd., Midland, Ontario

**THE JOYCE-CRIDLAND CO.**  
DAYTON 3, OHIO

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**MATERIAL HANDLING ENGINEERING**

# America's Leading Manufacturers of Materials Handling Equipment power with Chrysler Industrial Engines

## WHY?

### 1. PERFORMANCE

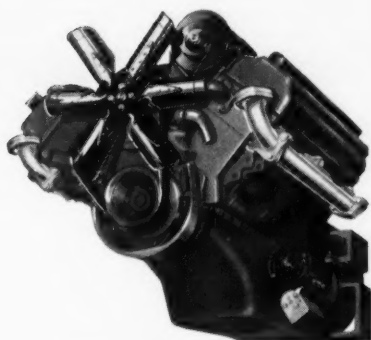
High speed Chrysler Engines develop more horsepower per cubic inch displacement than rival engines. Chrysler's famous fluid coupling and torque converter handle extreme load demands with peak efficiency.

### 2. LONGER LIFE

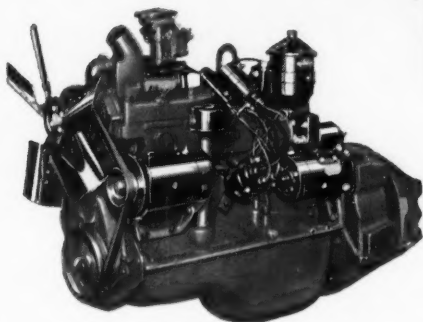
Full filtering oil system, special hardened crankshaft and bearing material, super-finished moving parts provide thousands of extra hours of trouble-free operation. Chrysler's vast service network minimizes down-time.

### 3. CUSTOM TAILORED

Thousands of combinations of options and accessories permit Chrysler engineers, working with manufacturers, to build an engine to meet the power needs of each individual application.



IND. 56-A (V-8) 354 cu. in. displacement



IND. 32 (6) 265 cu. in. displacement



### NEW CHRYSLER PRODUCT LINE CATALOG

enables a Chrysler engineer to "build" and price an engine for your specific application—right at your desk. A call or letter will bring a representative to your office.

# CHRYSLER

MARINE AND INDUSTRIAL ENGINE DIVISION  
CHRYSLER CORPORATION • DETROIT 31, MICHIGAN

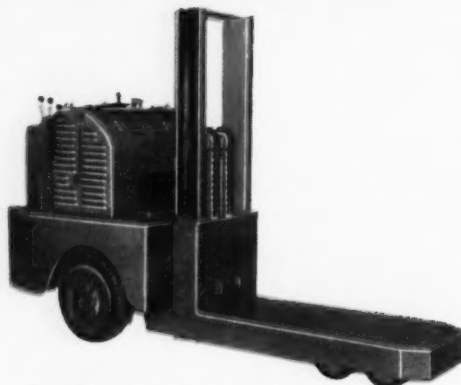
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# The NEWEST **ELPAR**



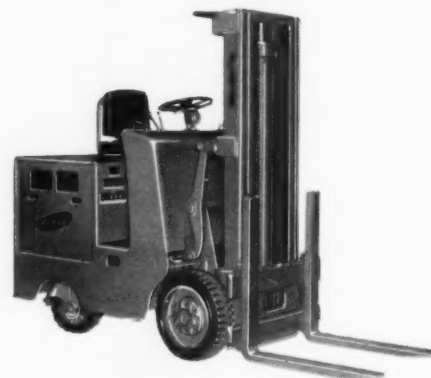
## For tight spots

Its new . . . a 2000# capacity truck with a 36" wheelbase. Also a low operator's seat for greater safety. Ask for F-48T bulletin.



## Hydraulic High Lift

Its New . . . The first high lift truck with hydraulic lift for better vision . . . smoother operations. Ask for E-13 bulletin.



## Fork Truck

Its New . . . Tough fork truck completely redesigned for closer maneuvering, lower maintenance and greater safety. Ask for F-50T bulletin.

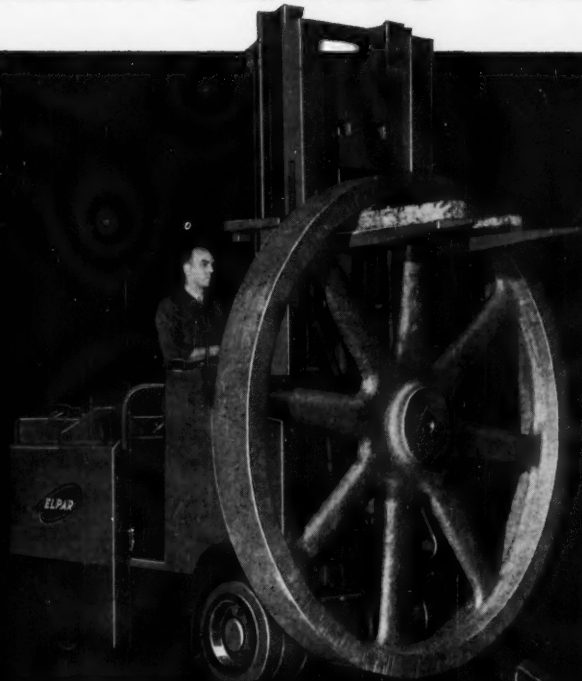


## See them In operation at the Show!

The Material Handling Institute's Exposition  
June 9-12, Cleveland, Ohio • Booth #1000



# ELECTRIC TRUCKS



## Big but maneuverable

Its new . . . Heavy duty "Titan" Series — in capacities from 12,000 to 20,000 lbs. Built to operate in boxcars. Ask for R-12 bulletin.

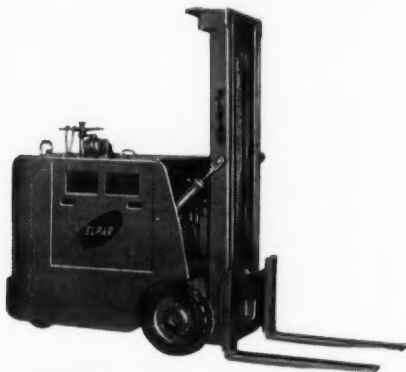


**. . . cost less  
than ever to own  
and operate**

Make it tougher . . . make it smaller . . . easier to maintain and safer to operate. These are the *most wanted features* you'll find on these new ELPAR trucks. Most surprising of all they *cost less* to own and operate than ever before!

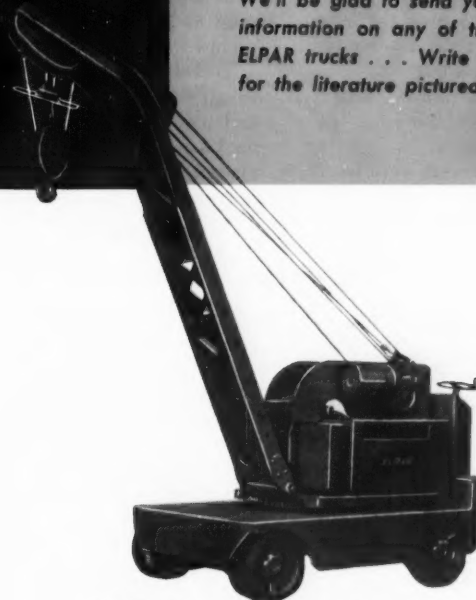
If you're planning to buy a new truck soon, be sure you investigate the cost cutting features of these new ELPAR electric powered industrial trucks.

We'll be glad to send you full information on any of these new ELPAR trucks . . . Write today for the literature pictured.



## Speedy "Cargo Scout"

Its New . . . built to handle big loads in tight places. Small but rugged for lower maintenance costs. Ask for F-38T bulletin.



## Mobile Electric Crane

Its New . . . a modern version of the mobile crane used for handling bulky, odd shaped loads. Ask for CX-4 bulletin.

**ELPAR**

THE **ELWELL-PARKER** ELECTRIC COMPANY  
4231 ST. CLAIR AVENUE • CLEVELAND 3, OHIO

ELECTRIC TRUCKS

**TWICE THE LIFE . . . ONE-THIRD THE OPERATING COST**



## NEWS ABOUT SPHE

### Merger Negotiations Have Failed

by John Mount, president, SPHE



THIS message is somewhat anticlimactic. Bynow I'm sure all our members are aware that merger negotiations between our Society and AMHS have broken off.

Unfortunately, the uncertainty of what was going to happen lulled many of us into a state of complacency and lack of action. Now we're approaching the summer season. With vacations coming, and the summertime slow down of Society activities, there is bound to be even more of this complacent feeling.

Our national officers were faced with a monstrous decision in April, and we acted in what we

thought was the best interest of our Society and you, the members. Naturally, our action was guided by the impressions we had received from the members.

Now we must start on a new and more active program. We can only carry out your desires and wishes if you let us know what these desires and wishes are. After that there is the second and just as important step, of giving us your individual assistance in manning and carrying out these programs.

Therefore I urge each member to give these matters his urgent and immediate attention. We can no longer sit back and be complacent. We either move on or out! What is your wish? To go on, I'm sure.

### Eastern Chapter Holds Air Symposium

The Eastern Chapter held an Air Cargo Symposium at New York's Statler Hilton Hotel May 11th. The panel consisted of top air cargo men.

Opening remarks for the afternoon and evening affair were by Howard T. Lewis, Professor Emeritus of Marketing, Harvard University.

Panels were divided into two groups. Speakers on Air Cargo Today were: **Bud Russ**, Trans World Airlines; **John Pogue**, Delta Airlines; **Sam Dunlap**, American Airlines; **Clarence Wilde**, Boeing Aircraft; and **T. R. Nolan**, Northwest Orient Airlines.

Speakers on Ground Handling

were: **Charles Hood**, Riddle; **Morton Brautman**, AFFA, and **John Emery, Jr.**, Emery Air Freight.

Chairman of the symposium were **John D. Farrington, Jr.**, president of the Eastern Chapter, and **Stanley Kermish**.

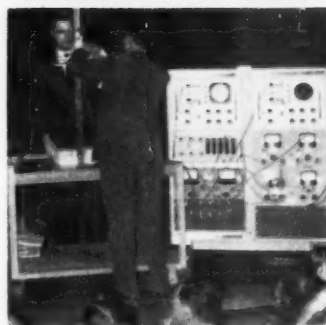
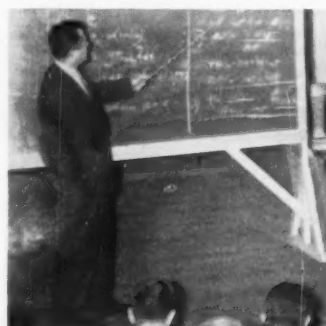
### 275 View Frisco Packaging-MH Panel

A record 275 engineers attended the Fourth Annual Industrial Material Handling and Packaging Conference at Stamford University recently. The Conference was co-sponsored by the Northern California Chapter of AMHS and the Golden Gate and Central California Chapters of SPHE.

There were 14 speakers and

panel members in the all day affair. Subjects included: Development and Use of Effective Unit Loads, Containers in Coordinated Transportation, Labor's Approach to Mechanization, How Management Evaluates Handling and Packaging Personnel, Determining the Effectiveness of Your Package, Warehouse Layout, In-Plant Handling, and Dynamic Testing of Packages.

One of the highlights of the affair was the awarding of a \$400 scholarship to Edward W. Thordson, a Stamford Industrial Engineering student. The three sponsoring societies donated the funds for the scholarship.



Paul Larmour (above) and Max Hill (below) address the San Francisco handling-packaging conference.

TUCSON—**Otto R. Storey** was the main speaker of the May 18th meeting of the Arizona Chapter. Storey, claims adjuster with Ari-

zona Motor Transportation Association, Inc., presented various aspects of proper packaging and material handling to reduce freight claims.

PHILADELPHIA—The Philadelphia Regional Chapter held a John Mount Night recently, in honor of the National president.

LOS ANGELES—The May 4th meeting of the Southern California Chapter was a Vendors' Night. Vendors of packaging and material handling equipment exhibited their products in tabletop displays and booths. Chairman of the special event was **H. L. Waters**, Radio Corporation of America.

HILLSIDE, N. J. — "The West African Story" was the subject of a recent meeting of the Eastern Chapter. Members heard **Fred W. Langner** describe how Socony Mobil Oil Co. faced extreme weather conditions and primitive material handling methods to distribute its products in West Africa. The program included Langner's collection of color slides.

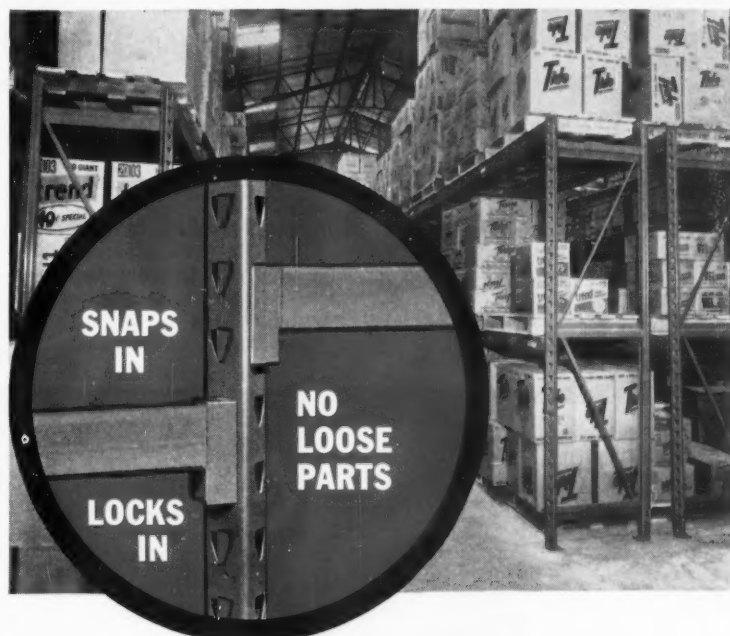
CHICAGO—The Great Lakes Naval Supply Depot presented a program on "Protective Material Handling and Performance Specifications" for members here recently. **Lcdr. Donald Jochems**, material supply officer, and **John Neubauer**, electronics supply officer, discussed problems their group had faced, and the solutions. This group also had a Tabletop Display Meeting later the same month. Speaker was **John C. Cushing**, U.S. Steel Supply Div., U.S. Steel Corp. His subject was, "How U.S. Steel Sees the Future."

ST. LOUIS — A joint meeting of SPHE and AMHS groups here recently had **Marvin E. Mueller**, Anheuser-Busch Co., as guest speaker. Mueller's subject was "Functional Drafting for Material Handling," an illustrated presentation using pressure-sensitive drafting materials.

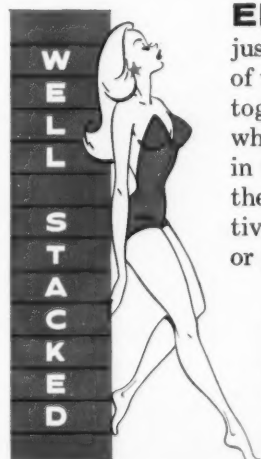
JUNE, 1959

# Fast!

## EMI *air-row head* Fully Adjustable Pallet **RACKS**



- EASY TO ERECT
- ONLY 2 BASIC PARTS
- SIMPLE TO ADJUST
- QUICK TO RELOCATE



**EMI AIR-ROW** Head Racks easily adjust to stack pallets, skids, dies and bulk of varying heights. Upright frames are tied together with sturdy steel support beams which quickly snap into AIR-ROW slots in the vertical post. Forge lock fittings on the ends of the support beams insure positive self-locking engagement with no sway or pop-out.

WRITE FOR OUR COMPLETE CATALOG!

# EQUIPMENT MFG. INC.

21552 HOOVER ROAD • DETROIT 5, MICHIGAN

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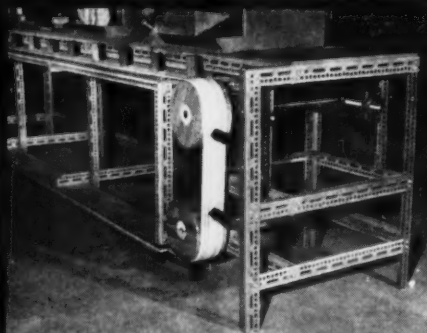


# *this is* DEXION



Throughout the U.S.A., and all the world over, more industries use DEXION slotted angles than all other makes combined . . . for storage-racking, materials-handling, enclosure-framing and the construction of special equipment . . . because only DEXION offers a **complete** range of **FOUR** sizes, in both steel and aluminum . . . and only DEXION (often imitated, but never equalled) has what it takes—the strength, the all-purpose usefulness—to meet such a great variety of needs, to do so many important things **so well**. Ask for genuine DEXION.

There's a DEXION angle for every job—in warehouse, factory, shop, showroom or laboratory—**heavy-duty, standard, light-duty or midget size . . . and a host of DEXION accessories to enable you to build it better, faster, cheaper.**



## DEXION *saves time and money*

no detailed plans, no measuring, no skilled workmanship, no painting,  
easy to use, maintenance-free, waste-free, completely re-usable.



Write for the name of your  
nearest DEXION-distributor

**DEXION INC. 44 WHITEHALL ST., NEW YORK 4, N.Y.**

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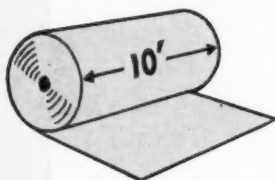
**MATERIAL HANDLING ENGINEERING**



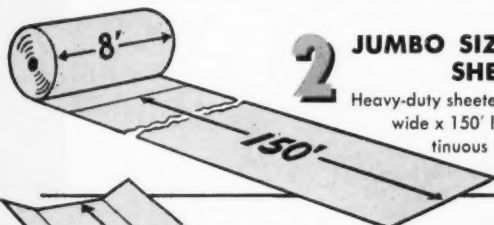
# DID YOU SAY

# BIG?

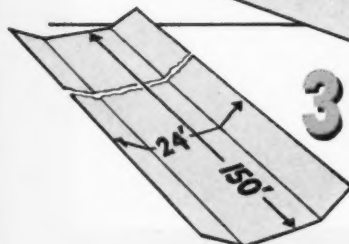
**THILCO'S complete line of heavy-duty PROTECTIVE wrapping papers are available in —**



- 1 ROLL WIDTHS UP TO 10'**  
Full 120" wide papers without lap or seam available in most every heavy duty protective grade.



- 2 JUMBO SIZE SHEETED ROLLS**  
Heavy-duty sheeted papers up to 96" wide x 150' long, wound in continuous feed-off rolls.



- 3 KING SIZE BLANKETS**  
Heavy-duty grades up to 24' wide x 150' long. Largest sizes double and/or triple-folded to reduce handling costs. Accepted for pool car shipments.

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- Reinforced • Creped • Specialties
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- Colored • Trade-mark Decorated
- Non-staining\* Blond Laminants

### POLYETHYLENE TREATED

- Laminated • Reinforced • Creped
- Coated (clear, black\* or white poly)
- Poly, Wax and Asphalt Combinations
- Coated Pouch Papers • Specialties
- Special colors • Trade-mark decorated

**N**o matter how tremendously big (or small) your protective wrapping project may be — we're not "awed" by size, nor are we "baffled" by functional grade requirements! Simply tell us the kind of wrapping protection you are seeking, and if we don't have a functional paper grade to fit your needs, *we'll make one*

*to your specifications*, and make it just as tough and durable as your demands call for. Our years of experience and complete, integrated mill facilities in paper "Imagineering", makes all this possible. Advise us of your problems, today, so we can submit new ideas, solutions, samples... You'll be glad you did!

Circle 171 on Reader Service Card for more information



**Write for any of these Special Free Sample Kits**

- WRAP-DRI waterproof protective papers
- THILCO-TUF stainproof laminated papers
- VAPOTITE moisture-vapor barrier papers
- POLY COATED and special tested papers
- MG and MF natural and colored krafts
- GLASSINE and greaseproof papers
- SPECIALTY BAGS and case liners

# Thilco

*Functional Papers*

THILMANY PULP & PAPER COMPANY  
KAUKAUNA • WISCONSIN

NEW YORK • CHICAGO • DETROIT • BOSTON  
CLEVELAND • CINCINNATI • CHARLOTTE



Above: \*Thilco-Tuf heavy reinforced wrapper in 10 ft. widths protects mammoth pre-fab polished wood structural arches. Weather-proof, and non-staining, Thilco-Tuf does not offset, bleed or rub off to discolor factory finishes.

Below: Thilco \*Black Poly-Kraft in jumbo size sheets or rolls provides the ideal "All-weather" protection for materials and products in transit or storage. Black Poly protects against sun, light, water, vapor, grease, oils, acids, alkalis and alcohol.





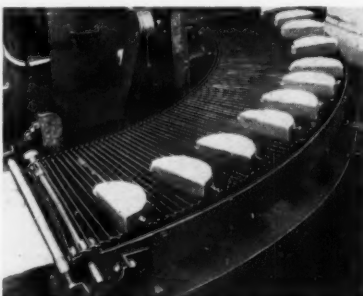
Another interesting Wendway installation. Twin flights of wide belt Wendway operate continuously between production stations to convey air filters to inspection stations.

*Here's what  
WENDWAY  
can do  
for You!*

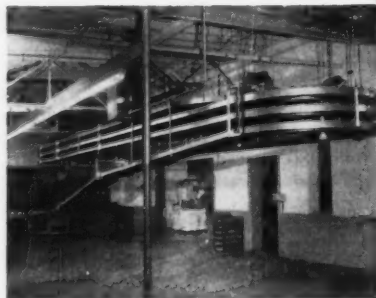
Wendway can be your "silent partner" by conveying any light products weighing 20 lbs. or less, swiftly and silently from one operation to the next. Wendway conveying systems are completely sanitary... safe for operators, too! Wendway will carry your products overhead, through walls, upstairs or down—to any place you want them. Wendway will eliminate wasted manpower, unnecessary handling and boost production all along the line. Standardized powered straight sections, curves, switches, etc., are operated by remote control and easily adjusted to required speeds. Wendway will smooth out your assembly processing, packing or inspection problems and pay for itself in time and equipment saved.

### Remember...

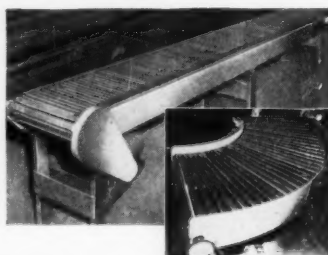
- Wendway answers your 'light product' conveying problems.
- Wendway complies with even the most rigid sanitation codes.
- Wendway synchronizes perfectly with other production line equipment.
- Wendway increases production line profits.



Wendway belting will not damage even the most delicate of products. Automatic conveying assures products of cleaner, fresher, neater appearance.



Overhead cooling for cooked or heated products saves you time and floor space. Wendway takes 'em up, cools 'em off and brings them down—automatically!



Photos above illustrate the rugged simplicity of the new USP Slat-type, powered conveyor—both straight and curved sections. Operation is smooth, silent and clean. Capacity is approx. 35 lbs. per lineal foot.



See Wendway  
In Action!  
Booth #500  
M.H.I. Exposition  
Cleveland

Gentlemen:  
Please have your area distributor contact me at once.

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_  
The product to be conveyed is \_\_\_\_\_

**UNION STEEL PRODUCTS CO., Albion, Michigan**

Circle 180 on Reader Service Card for more information

## CALENDAR of EVENTS

### June 9-12

Material Handling Institute  
1959 Exposition  
Public Auditorium  
Cleveland

### June 14-27

Sixth Annual Material Handling  
Training Course  
Industrial Management Center  
Lake Placid, New York

### June 16-17

Cornell University Industrial Engi-  
neering Seminars  
Ithaca, New York

### July 27-31

Industrial Engineering Seminar  
American Management Association  
Colgate University  
Hamilton, N.Y.

### September 14-16

Material Handling Seminar  
American Management Association  
Chicago

### September 21-23

Packaging Seminar  
American Management Association

### October 4-6

Joint Industry Fall Meetings  
MHI, ITA, ALTAPEM, Monorail  
Manufacturers  
Lake Placid Club  
Lake Placid, N.Y.

### October 10-13

26th CEMA Annual Meeting  
Grand Hotel  
Point Clear, Alabama

### October 14-16

Warehousing Seminar  
American Management Association  
New York

### November 16-20

ASME Automation Show & Confer-  
ence on Material Handling  
Trade Show Building  
New York

### November 17-20

Packaging Machinery Manufacturers  
Institute Show  
New York Coliseum  
New York



**Lincoln Takes a Trambeam Tour...**

## SAFE, FAST, OVERHEAD HANDLING

Whiting Trambeam carries Lincoln and Continental bodies overhead—adds a new dimension to efficient handling in the Wixom, Michigan Lincoln assembly plant of Ford Motor Company. The system is 1,500 feet long, includes 7 switches and numerous curves.

Trambeam increases production efficiency by moving loads overhead safely and with pin-point precision. Pushbutton-controlled electric hoists provide the lifting "muscle." Heavier capacities are equipped with exclusive Whiting motor drives. For complete maneuverability throughout a system, Trambeam's distinctive "half-hexagon" rail is standard size for all capacities. Each sys-

tem is engineered for minimum maintenance and lowest operating cost. See how you can build new efficiency into your plant with a Whiting Trambeam Overhead Handling System.

### HERE'S A BOOK FULL OF "IDEAS IN MATERIALS HANDLING"

12 idea-packed pages... filled with actual installation photos of Trambeam Monorail systems for point-to-point transport and Trambeam Crane systems for complete area coverage. ASK FOR YOUR COPY. Whiting Corporation, 15601 Lathrop Avenue, Harvey, Illinois.



87 OF AMERICA'S "FIRST HUNDRED" CORPORATIONS ARE WHITING CUSTOMERS

# WHITING

**75th year**



MANUFACTURERS OF CRANES; TRAMBEAM HANDLING SYSTEMS; TRACKMOBILES; FOUNDRY, RAILROAD AND CHEMICAL PROCESSING EQUIPMENT  
Circle 191 on Reader Service Card for more information

JUNE, 1959

# 3 mobile units

## for plant lifting jobs

• A UNIT Mobile Crane is just what you need for the many material handling jobs around your plant. Mounted on rubber and self-propelled, the machine travels anywhere and works efficiently, *even in small yards where space is limited*. Easy hydraulic steering and operating controls from within the **FULL VISION CAB** give the operator complete visibility for **SAFE** loading and unloading. For faster material handling and lower operating costs, investigate these Mobile **UNIT**S.



**UNIT 357 MOBILE CRANE** — powered by one engine — controlled and operated by one man — short turning radius — air operated transmission — hydraulic steering — mounted on six pneumatic tires, duals on rear — capacity 10 tons.



**UNIT 1520T** designed for heavy duty truck crane operation. Lifting capacity up to 20 tons. Also available is a **UNIT 1014 TRUCK CRANE** having a lifting capacity of 15 tons at a 10 foot radius.

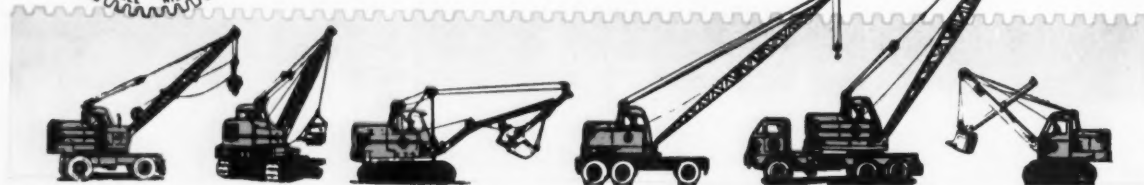
**UNIT 1520** Heavy-Duty Mobile Crane with lifting capacity up to 20 tons. Mounted on twelve pneumatic tires with duals on steering axle and tandem rear axles.



Bulletins available on each of the above models.  
Write for your copies.

**UNIT CRANE & SHOVEL CORP.**

6531 W. Burnham Street • Milwaukee 14 Wisconsin



Circle 181 on Reader Service Card for more information

A7-5011

**MATERIAL HANDLING ENGINEERING**

Circle 44 on Reader Service Card ➤





Photo courtesy of All-Steel Equipment Inc.

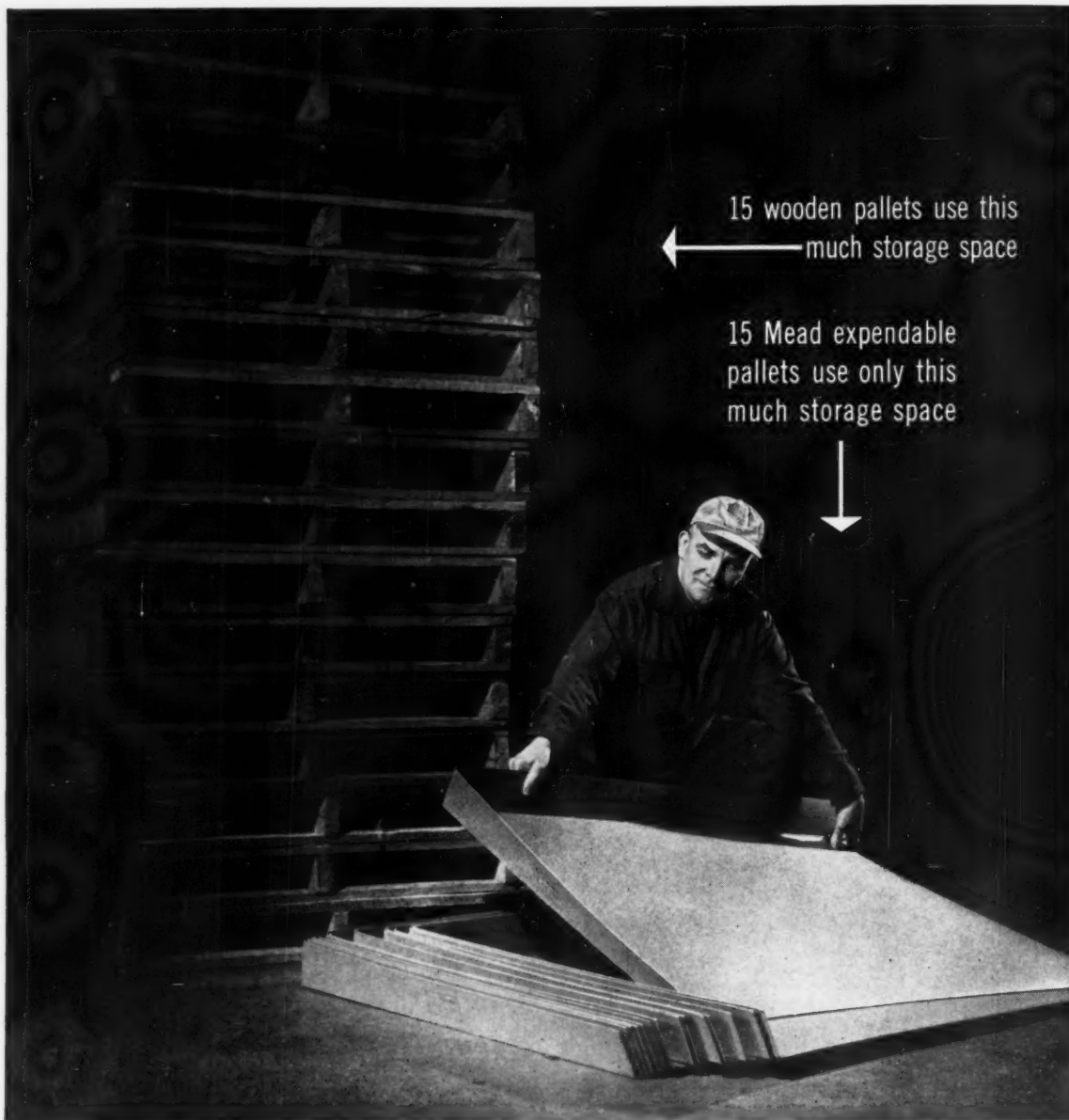
## *Cutting the cost...of a "mountain" of steel desks!*

By utilizing a Clark Slender-Arm Clamp, this company was able to eliminate pallets, thereby eliminating unnecessary overhead. In addition, the Clark Engineers consulting this company, recommended use of the new Triple Stage Upright so that extra high stacking could be accomplished *without* sacrificing the lift truck's ability to work in low-overhead rail cars. The end result was much greater storage capacity, one-time handling between warehouse and loading out, a need for fewer trucks.

Your Clark dealer, a Materials Handling Spe-

cialist in his own right, has access to the same team of Factory Specialists that developed a "first" in this Company's industry. Regardless of your location, a nearby Clark Dealer is ready to serve you. Call him direct, or write: Materials Handling Specialists, Clark Equipment Company, Battle Creek, Michigan. (Enlargements of the illustration, suitable for framing, are available upon request.)

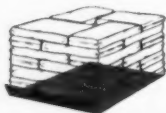
**CLARK<sup>®</sup>**  
**EQUIPMENT**



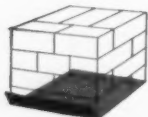
15 wooden pallets use this  
← much storage space

15 Mead expendable  
pallets use only this  
↓ much storage space

## Save costly storage space with Mead expendable pallets!



**Poke-Pak®** for bags



**Glide-Pak®** for boxes

Mead expendable pallets cost less to buy—less to store. They take up less valuable storage space than any other pallet. Made of tough, hardwood fiberboard, Glide-Pak and Poke-Pak easily hold the heaviest loads. And they cost so little they're truly expendable. Need no deposits from customers. Completely eliminate return headaches, freight credits and charge-backs. But get all the facts for yourself.

Write today for free booklet.

Circle 123 on Reader Service Card for more information

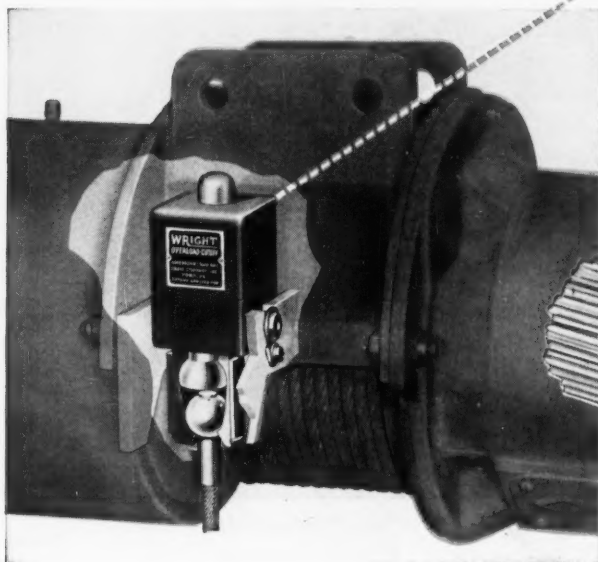
**MEAD**  
*board*

THE MEAD CORPORATION  
118 West First Street, Dayton, Ohio  
Sales Offices: Mead Board Sales,  
Inc., Lynchburg, Va. • Newark, N. J.  
Cincinnati, Ohio • Detroit, Michigan  
Chicago, Ill. • Boston, Massachusetts

**MATERIAL HANDLING ENGINEERING**

# ***New from Wright!***

**Built-In Overload  
Protection for Operator,  
Load and Hoist  
with the New Wright  
Overload Cutoff\***



Now, for the first time on any electric hoist, you can have safe, sure mechanical overload protection as a built-in feature with the **WRIGHT Overload Cutoff**. Designed and built to fit any new **WRIGHT Speedway Electric Hoist**, the Overload Cutoff unit you see pictured above is a compact, integral part of the hoist frame itself. As a result, it becomes a functional part of the hoist at no sacrifice in headroom. The **WRIGHT Overload Cutoff** is so simple in design and operation that it is guaranteed to give dependable, trouble-free protection during the entire life of the hoist. Calibrated and sealed at the factory for the user's protection, the unit takes rugged abuse up

to the critical point of overload—then instantaneously "breaks" the raising circuit of the hoist. This allows the load to be safely lowered to the floor and unhooked. Once this is done, the raising circuit of the hoist is again automatically restored.

The **WRIGHT Overload Cutoff** is available now as standard equipment on all new **WRIGHT Frame 2 & 3 Speedway Electric Hoists**, and as optional equipment on new **Frame 1 & 1½** models.

Find out how **WRIGHT Speedway Hoists** equipped with **Overload Cutoff** can bring practical, fast-acting overload protection to your material handling operations. For complete information, write our York, Pa., office.

\*Patent applied for



## **WRIGHT HOISTS**

**Wright Hoist Division • American Chain & Cable Company, Inc.**

York, Pa., Atlanta, Chicago, Denver, Detroit, Houston, Los Angeles, New York,  
Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

Circle 22 on Reader Service Card for more information





ask about  
IDEA No.  
S2-27

Know your AIM\*... Reading Tube does...

## Strapping Machine increases production 900%

**READING TUBE CORPORATION, READING, PENNSYLVANIA**, uses an Acme Steel Model F1 Semi-Automatic Strapping Machine to bundle packages of copper tubing. Since the introduction of the F1 into the packing line there had been a 900% increase in the number of coils strapped. (Idea No. S2-27)

The F1 strapping station is located at the end of a fast moving conveyor line. Here the operator stacks the packages of tubing four high and inserts the strap through the eye of the coil. The finger-tip controlled F1 automatically delivers the correct length of strap, draws the strap to the predetermined tension, and cuts and permanently spot welds the ends together... all in one fast operation.

\***Know your Acme Idea Man.** He is sure to provide clues to better ways of protecting and shipping your products. Call him today at a nearby Acme Steel office. Or write Dept. MJS-69, Acme Steel Products Division, Acme Steel Company, Chicago 27, Illinois. In Canada, Acme Steel Company of Canada, Limited, 743 Warden Avenue, Toronto 13, Ontario.

Acme Idea Man  
H. W. Croop, Jr.  
works with Reading  
Tube, and many  
other progressive  
companies.



**ACME STEEL** **STEEL STRAPPING**

Circle 3 on Reader Service Card for more information

**MATERIAL HANDLING ENGINEERING**



**Load Handling  
is Easy—  
Safe with  
COFFING**

**Quik Lift**

**ELECTRIC HOISTS**



**It's easy** for the operator to raise or lower loads while pulling a trolley mounted Coffing Quik-Lift Electric Hoist. The design of the pistol-grip control station and the combination strain and power cable makes this possible. The light but strong aluminum housing provides ease of portability. Changing voltages, limit switch, type of suspension or chain is quick because the housing is in sections.

**For Safety** the control station is made of non-conducting plastic in which the voltage is reduced to 115 volts and the push-buttons are mechanically interlocked. The V-type brake which provides maximum braking surface and positive control of loads is another safety feature.

**For Efficiency** in load handling specify Coffing Quik-Lift. Twenty models—capacities range from 1/4 to 2 tons. Ask your distributor for details or write for Bulletin ADH-65.

Pistol-Grip Push-Button Control

Lightweight Aluminum Housing

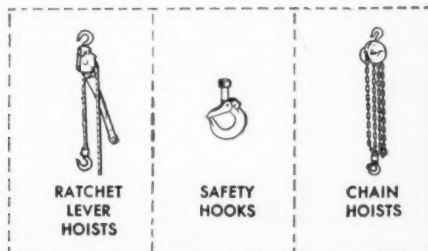
V-Type Brake for  
Maximum Braking Surface

Easily Adjusted Limit Switch

Complete Line of Accessories



MATERIALS HANDLING SHOWBOOTHS 2038 TO 2042



RATCHET  
LEVER  
HOISTS

SAFETY  
HOOKS

CHAIN  
HOISTS

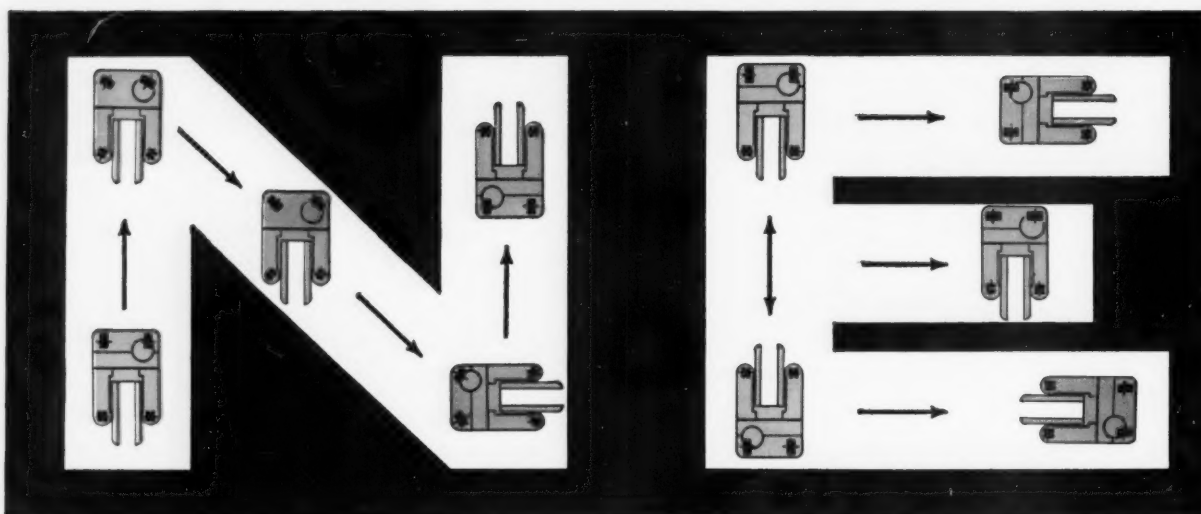
**COFFING HOIST**

DIVISION OF  
**DUFF-NORTON COMPANY**

821 Walter Street • Danville, Illinois

# AUTOMATIC

**previews 2 of the many  
new trucks it will introduce  
at the 1959 MHI Exposition**



## **New CRAB TRUCK** maneuvers in all directions

Automatic's new Crab Truck is the answer to the materials handling man's dream for unusual aisle operations. The Crab Truck's all-directional steer allows maximum maneuverability *in any direction, at any angle, with any type of load!*

The Crab Truck with 65-inch length can turn completely around in a 70-inch circle. Bulky, odd-shaped loads can be carried across the truck's forks and moved sideways down the aisle. Placing and positioning load is done by a reach-type fork attachment which can swing load 30° each side of center. Capacities: 2,000 to 4,000 lbs.



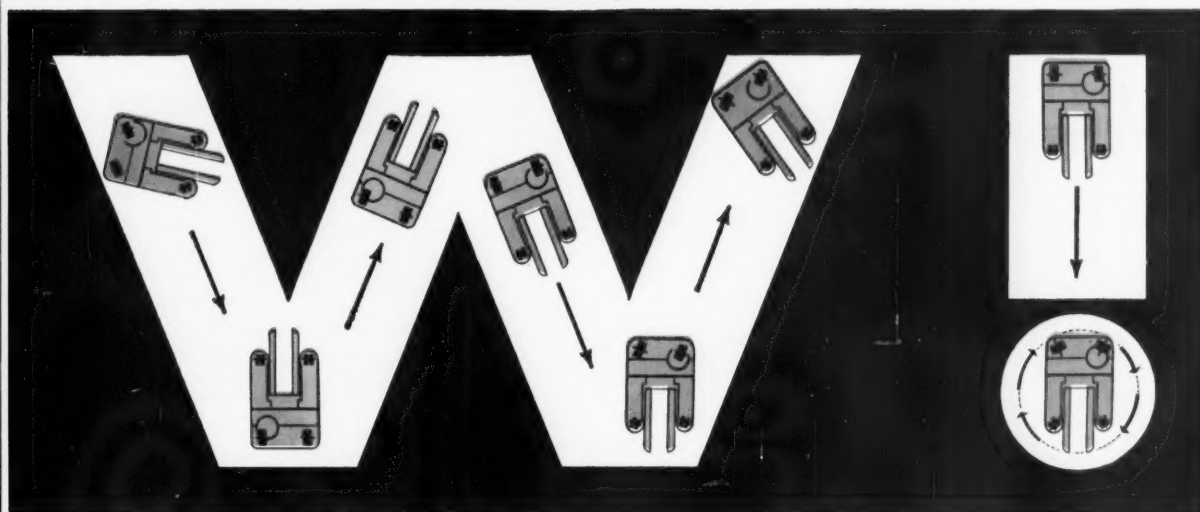


**Booth 1001**

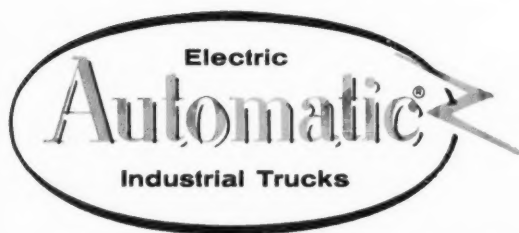
## **SKYLIFT Model ELF** with new electric control costs less to operate

Automatic's new Model ELF, with new motor and control, gives smooth, quiet acceleration through its entire speed range...saves up to 50% of battery power during maneuvering operations. Compact design, plus fast travel and lift speeds, make it ideal for plants and warehouses that require a highly maneuverable and efficient industrial truck.

The ELF's large battery compartment will accommodate the power supply needed to perform the toughest jobs. Equipped with convenient finger-tip controls to reduce driver fatigue. Available in 4,000 to 10,000 lb. capacities.



See these and all the other new Automatic lift trucks on display at the Material Handling Institute's Exposition, Cleveland Auditorium, June 9-12, 1959. Automatic's Narrow Aisle equipment in Booths 600 and 707. Automatic's Wide Aisle equipment in Booth 1001.

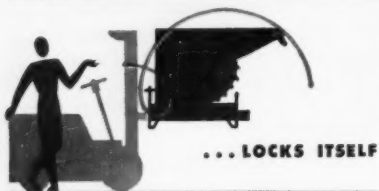
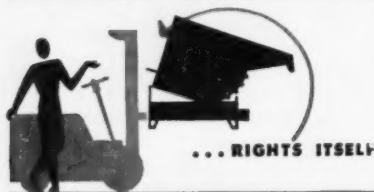


*Advanced Materials Handling  
at less cost to you*

### **AUTOMATIC TRANSPORTATION COMPANY**

Division of The Yale & Towne Manufacturing Company • 141 West 87th Street, Dept. H-9A, Chicago 20, Illinois  
WORLD'S LARGEST EXCLUSIVE BUILDER OF ELECTRIC-DRIVEN INDUSTRIAL TRUCKS

Circle 19 on Reader Service Card for more information



### This hopper and your truck can cut handling costs 50%

It's a self-dumping hopper made for fast, efficient handling of wet or dry, hot or cold bulk materials, such as:

Scrap Metal . . . Cinders  
Cullet . . . Hot Forgings  
Punch Press Parts  
Soybean Meal . . . Pickles

Hundreds of industries use thousands of them. Pick-up is swift and simple. Forks or platform of any standard lift truck slide easily into hopper underframe. Truck operator picks up loaded hopper . . . transports it to its destination . . . trips the latch . . . and the Roura does the rest . . . automatically.

They're strong . . . husky . . . made of  $\frac{3}{16}$ " steel plate with continuous arc-welded seams. Also available in stainless steel or galvanized. Made in five sizes,  $\frac{1}{2}$  to 2 yard capacities, with five skids or a choice of wheels.

Standard models are available for immediate shipment from stock.

## ROURA Self-Dumping HOPPER

**WANT MORE DETAILS** on how you can save money with Roura? Just clip this coupon... attach it to your letterhead . . . sign your name . . . and mail to

**ROURA IRON WORKS, INC.**  
1411 Woodland Ave., Detroit 11, Michigan

Circle 153 on Reader Service Card

## COST CUTTING IDEAS

### \$ Strapping Machine Increases Output

Before the Reading Tube Corp. at Reading, Pa., started using an Acme Steel F1 semi-automatic strapping machine, it used two

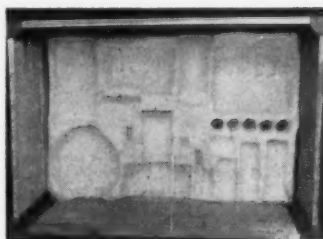


piece hand tools to unitize packages of coiled copper tubing. One man could stack and strap 25 units a shift. Now, one man using the push-button strapping machine, stacks and straps 300 units a shift. Tubing is packed in cartons and placed on a powered conveyor which takes them to the unit. The operator who controls the conveyor flow, stacks four cartons and applies two straps to each stack. Packages are hexagonal, and open in the center. Straps are placed around opposite sides and through the center of the stack. Machine applies each steel strap with uniform, predetermined tension. Then it cuts it and joins the strap ends with two spot welds. All strap waste is eliminated, as the end of one tie is the start of the next.

Circle 251 on Reader Service Card

### \$ Urethane Container Does Three Jobs

Rigid urethane foam container has a separate cavity for each part to be shipped. It serves as a protective shipping contain-



er, as a parts assembly jig, and as a checking fixture for solid fuel rocket engines. Simple mold is made of dowels and easily cut wood shapes. It is covered with a thin film of silicone-base parting agent before a special Dayton Rubber Co. urethane mix is poured on. In a few seconds, the mix sets to the contour of the mold, which is ready for immediate reuse.

Circle 252 on Reader Service Card

### \$ Storage Racks Handle 8½ Ton-Per-Hour Flow

Material is received in large shipments and is redistributed in many small lots at Butler Brothers



ers Distributing Center. The company relies on palletizing and bulk shelf storage. Both functions are handled interchangeably by a storage system made up of Sturdi-Bilt adjustable racks. Warehousemen always fill orders from bottom pallets. When this stock is depleted, the top pallet is lowered into bottom position. Fork trucks then replenish the top reserve stock. When slow moving or a variety of products make pallets impractical, workmen convert the racks to shelves for bulk storage by placing ordinary dunnage across the recessed horizontal support bars. Usable storage space has been increased by one-third. Ease of top stacking allows material to be stored to a height of 16 feet under an 18-foot ceiling. Adjustable feature of the system permits fast change of shelf height to match the size and shape of loads.

Circle 253 on Reader Service Card

MATERIAL HANDLING ENGINEERING



Revolutionizes long load handling! Baker's exclusive, sideloading Traveloader introduces a new concept in mechanized handling by stacking, carrying, and delivering—at speeds up to 40 mph with one man operation. Stacks up to 12 feet high and operates easily in aisles no wider than 10 feet. Gas, diesel, or electric powered. Available in 17 models—4,000 to 30,000 pound capacities—with power steering and power brakes.

**79 models**



Only **BAKER** gives you so many  
to do so much!

**GAS • LP GAS • ELECTRIC • PLATFORM • CRANE • SIDELOADING TRAVELOADER**

Here is industry's most complete line of gas and electric industrial trucks—79 different standard models (and an infinite number of special applications) representing the most modern design trends in mechanized handling equipment to meet any materials handling requirement.

And only Baker has it! Baker's complete line offers you rider-type fork trucks, platform and crane trucks, and the exclusive Traveloader, either gas, electric, LP, or diesel operated.

Add to this the many design advancements reflected in the Baker truck line—countless Baker "firsts" now accepted as the *standard of industrial truck quality*. They're the result of more than a century of skill and experience by Baker in the manufacture of transportation equipment.

**38 models broaden gas truck selection!** All proven through years of outstanding performance. Top operating efficiency, maneuverability, speed, and low maintenance assured through Baker "Balanced Design". Standard full capacity lifts to 144". Higher lifts available. Choice of gasoline or LP gas operation and standard Baker Uno-Torque or Duo-Torque transmission. Pneumatic tires available for dual-purpose, indoor-outdoor operation. Capacities from 2,000 to 7,000 pounds.



**SUGGESTION:** Baker's combination of *more complete* line, highest quality, best maintenance programs and finest lease plans, is by all odds your best bet to solve any particular material handling problem. Your Baker Industrial Truck dealer will be happy to show you how. Call him in today or write to Baker Industrial Trucks, 8003 Baker Ave., N.W., Cleveland 2, Ohio.



**BAKER**  
industrial trucks  
A Division of Otis Elevator Company



**Choice of 24 battery-powered trucks!** Pioneer in electric truck development, Baker offers such features as hydraulic wheel brakes; independent, seat-controlled, parking brakes; Baker exclusive dynamic-braking; shorter turning radius; power steering for easier handling. Standard full capacity lifts to 144". Load capacities from 2,000 to 15,000 pounds. Battery-powered Low-lift and Hy-lift platform trucks with exclusive Baker-design worm drive for long life and dependable operation also available.



Circle 26 on Reader Service Card for more information

# NEW

## RAYMOND

### HEAVY-DUTY TRUCK

# Outperforms

### any narrow aisle truck

24 volt



**Greatest  
Industrial Truck  
Advance  
in 10 Years!**

- Two husky motors power . . .
- Two steerable all-gear drive wheels.
- Two-wheel hydraulic brakes.
- Four speeds forward or reverse.
- Climbs ramp with full load.
- Powerful rapid lift and lower.
- Operates in aisles as narrow as 7 1/2 ft.
- Travels indoors, outdoors, up ramps.

#### The RAYMOND CORPORATION

3391 Madison Street,  
Greene, N. Y.  
Send Heavy Duty  
Truck Bulletin

NAME \_\_\_\_\_ TITLE \_\_\_\_\_  
COMPANY \_\_\_\_\_  
STREET \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

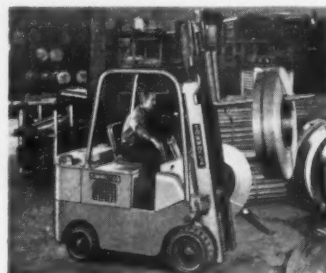
Circle 147 on Reader Service Card for more information

#### COST CUTTING IDEAS

(Continued)

#### \$ Adjustable Forks Give "Double-Duty" Use

Various fork positions play an important part in expediting material handling in the receiving,

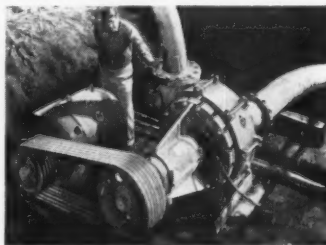


production and shipping at Equipment Manufacturing, Inc. It uses a fleet of five Towmotor fork lift trucks. Forks are used in conventional carrying position to load stock racks in railroad cars and to stack storage racks holding heavy loads of metal tubing. The operator "centers" the adjustable forks to simulate a ram attachment to handle coiled materials. Storage operations are speeded, and maximum use of warehouse space is made.

Circle 254 on Reader Service Card

#### \$ Pump Reduces Handling Costs

An Allis-Chalmers rubber lined pump is saving handling costs in transporting sand at the Bryan



Rock and Sand Co. In a continuous operation, sand is discharged from the washer and is retained in a slurry form. It is immediately drawn by the 10 by 8 inch rubber lined pump and transported through hose to any selected storage area. The pump replaces a stacker and conveyor previously used to transport the material. In one year, 2000 tons of abrasive sand was moved in the average 9 hour day.

Circle 255 on Reader Service Card

## \$ Pump Resists Abrasive Liquid

This pump has lasted four times longer than any pump used before it in handling cachaza (an abrasive liquid mixture of sugar juices,



cane wax, dirt, sand, lime, and chloro-phyllase) at a sugar cane mill of the U. S. Sugar Corp. A savings of \$2,300 has been made each year in replacement costs. Constant 24-hour-a-day operation used to wear out 2 casings and 1 impeller during the 5 month season. But the present pump, made of a special bronze alloy, has been in operation five years with no major parts needed for repairs.

Circle 256 on Reader Service Card

## \$ Conveyor Eliminates Waiting Time

The cost of handling freshly laundered linen items was greatly reduced at Munger Linen Service Co. by installing a Mono S-10 conveyor along side the pressing



machines within easy reach of every operator. Time is saved because there is no need to wait when a garment is ready to place on the conveyor. It consists of a flexible rotating cable with a spiral groove in its surface. The cable is supported in an open top rack so that the upper surface of the spiral groove cable is exposed. Any hook placed on top of the cable is immediately carried away. The laundered items are delivered to a folding area where they are automatically discharged from the end of the conveyor.

Circle 257 on Reader Service Card

# NEW

RAYMOND

## HEAVY-DUTY TRUCK

# Outperforms

many counterbalanced trucks



**Performance  
never before  
possible!**

**24 Volt**

Combining the operation of heavy counterbalanced trucks with narrow aisle trucks, the Raymond Heavy Duty outperforms many counterbalanced models and all narrow aisle equipment! Due to short length, combined steerable wheels and driving wheels, full 90° right angle turning and tiering is possible in aisles as narrow as 7½ feet. Result: more space for storage or production.

Two husky 24-volt motors power two large, steerable, all-gear drive wheels . . . produce positive power for long hauls, up ramps with full load, and for outdoor use . . . real power for rapid lift or lower. Four speeds forward or reverse. Two-wheel hydraulic brakes.

### The RAYMOND CORPORATION

3390 Madison Street,  
Greene, N. Y.

Send Heavy Duty  
Truck Bulletin

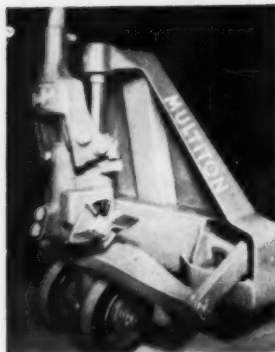
NAME _____	TITLE _____
COMPANY _____	
STREET _____	
CITY _____	STATE _____

Circle 146 on Reader Service Card for more information



*gives you*

**SUPERIOR QUALITY**

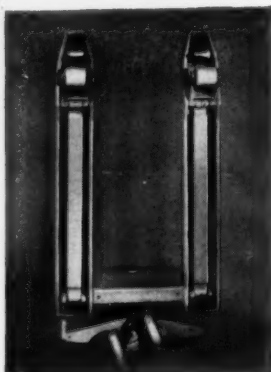


**UP  
FRONT**

- Patented leakproof hydraulics with overload and overflow valves
- Hard-chrome plated pistons in honed cylinders
- Precision-machined oil lines—no pipes, no tubings, no packings
- Magnetic oil filter

**DOWN  
UNDER**

- Box-section type push rods
  - Taper roller bearings on load rollers
  - Torsion-proof hardened joints
  - Effortless operation through pallet entry & exit rollers



**OVER-ALL**

- Hand-operated  $4\frac{1}{2}$ " lift in only 3 strokes
- Constant lowering speed regardless of load
- All valves easily accessible from outside
- Low tapered forks for maximum clearance

Full 6 months warranty

**MULTITON FULLY  
HYDRAULIC  
PALLET TRUCK**

**Still only \$358**



Capacities: 2200, 2500, 4400 lbs.  
Skid adaptors and/or brake optional. Available in all standard fork lengths with full variety of wheels to fit every requirement. Write for full information.

**STOKVIS MULTITON CORP.**

Dept. No. MHE-6, 18 Secatoag Ave.  
Port Washington, New York

Circle 164 on Reader Service Card for more information



*Yes*

**THERE IS, TOO, AN EASY WAY!**

**MOVE "IT" ON A**

**MULKEY  
UTIL-A-VAY**

**FLOOR  
TO FLOOR!!**



**LIGHT  
STURDY  
INEXPENSIVE  
VERSATILE**

**E-X-T-E-N-D-A-B-L-E**  
UP TO 40' AT 60° ANGLE

At last a sensible inexpensive portable floor to floor Conveyor! Enthusiastically accepted by the materials handling industry and especially adapted to industrial use. This tubular chain and flight conveyor is the answer to many material movement problems. Basic 16 ft. length extendable by 8 ft. sections up to 40 ft. in length. Ideal for floor to floor handling, car unloading, truck loading, package and carton movement as well as bulk material.

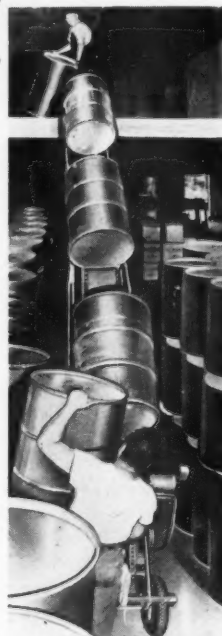
Lock Swivel Wheel Assembly is available as an accessory item at a nominal cost.

**HORIZONTAL**  
*movement from...*

station to station in and out of cars, trucks, docks. Mobile wheels afford quick movement to and from point of use. Handles loads up to 400 lbs.

*Dealership Available!*

**Write direct for dealer discounts and details.**



**SAM MULKEY CO.**

MANUFACTURERS OF PORTABLE CONVEYORS

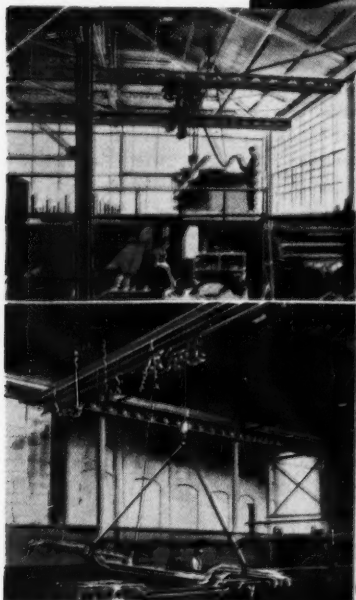
DEPT. M.H.G., P.O. BOX 270, LEE'S SUMMIT, MO.

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**MATERIAL HANDLING ENGINEERING**

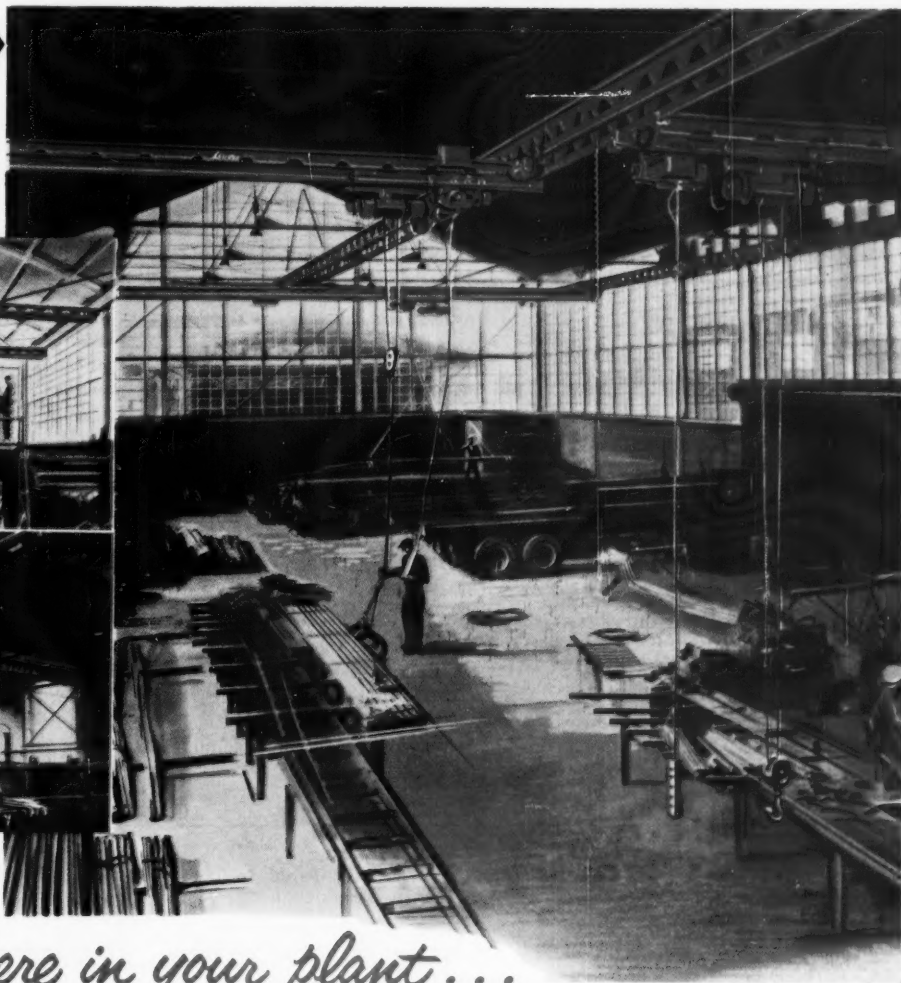


Louden Integrated Materials Handling System at the Southern GF Company, Atlanta, Georgia. Note Louden MotoVeyor Propelled Hoist handling load on separated interlocking crane . . . two other cranes in background interlocked.

Louden crane in receiving department unloading freight car and placing materials in storage.



Louden crane transferring shaped rods directly from bender to a storage area or to trucks for delivery.



*Anywhere in your plant . . .*

## LOUDEN INTERLOCKING MONORAIL CRANES

Typical of how Louden Material Handling Systems can integrate the handling operations in an entire plant is the installation at the Southern GF Company of Atlanta, Georgia. This steel bar fabricator uses two sets of Louden Interlocking Cranes, each on parallel sets of Louden Crane Runways that run the length of the fabricating area. A single Louden Crane is used width-wise at one end of the plant for unloading and placing raw materials in storage. The interlocking cranes pick up material from storage and deliver it to the shears, then to the benders and from there either to storage or to trucks for immediate use.

"With this integrated system, handling has been made easier by transferring, not only from end to end, but also from side to side . . . and in addition, can load trucks direct

from the benders. This system has enabled us to put to better use our entire floor space."

A Louden System combines *all* the essentials for satisfaction . . . *the engineering, the experience and the equipment capable of gaining full benefit from the fundamental advantages of overhead handling.* Call on a Louden engineering representative today to help you with your materials handling problem. Your inquiry will receive prompt attention.

NEW . . . get the latest information on the best in modern materials handling methods. Full of how-to-do-it ideas . . . industry by industry. Write today for your copy of "COST-CUTTING WITH MONORAIL AND CRANES."



THE LOUDEN MACHINERY COMPANY  
9306 Broadway, Fairfield, Iowa

*A Subsidiary of Mechanical Handling Systems Inc.*

**Louden**

**MONORAIL & CRANES**

SINCE 1867 . . . THE FIRST NAME IN MATERIALS HANDLING

Circle 112 on Reader Service Card for more information

JUNE, 1959

63



## NEWS ABOUT AMHS

### Just a Reminder . . .

If you're at the MHI Exposition and you don't have a ticket to the AMHS 10th Anniversary Banquet—all is not lost. There may be a few seats left. At this writing, the space is being bought up, table by table. But Art Beedle, AMHS Banquet Committee reservations chairman, estimates that a few tickets will be left at Exposition time. So if you find yourself ticketless when you arrive in Cleveland, check in at the AMHS information booth in the lobby of the Public Auditorium. The people there will be glad to help you get a reservation to the Banquet. Cost is ten dollars.

Every AMHS man who attends the Exposition should be at the 10th Anniversary Banquet. It's the biggest, and most significant, social gathering the Society has ever sponsored. The Undersecretary of Commerce for Transportation, John J. Allen, will be the featured speaker. He'll talk about the St. Lawrence Seaway and its effects on Canadian-American trade relations. There will be an installation of officers at the banquet, and the annual material handling awards will be presented.

CLEVELAND—**Edward H. Leighten**, executive editor of **MATERIAL HANDLING ENGINEERING**, was elected president of the Cleveland Chapter. Other new board members elected are: **Herman Maschmann**, General Electric Co.; **Robert Brady**, McClelland and Associates; **Frank McClimon**, Euclid Div., GM; **Al Toscano**, American Greetings Corp. Leighten succeeds **Paul Schreck**, vice president of Moto-Truc Co.

NEW JERSEY — The Mennen Co. was the site of an April tour by the New Jersey chapter. **Dom Cerrato**, material handling engineer for the company, made arrangements. Receiving, storing, product filling, packaging, and order make-up were some of the operations viewed.

NEWPORT — The Narragansett Chapter listened to **Capt. Thomas A. Brown**, Commanding Officer of the U.S. Naval Supply Depot, at the April meeting. Capt. Brown discussed the problems and techniques of material handling in the Navy. "Our problems in material handling equipment and its use are

unique when compared to common practices," he said, "In view of this we are constantly looking for new ways to cut our handling costs."

MONTREAL—An honored speaker at the Montreal Chapter's March meeting was **Dr. Lillian M. Gilbreth**. She spoke on "The Human



Side of Automation," posing some of the problems that are arising from the use of machines to eliminate human drudgery. In the photograph, **W. L. Brown**, Montreal Chapter president, presents a corsage to **Dr. Gilbreth**. Left to right: **D. J. Monro**, president, Society of Automotive Engineers; **W. L. Brown**; **Dr. Gilbreth**; **Dr. L. Austin Wright**, Engineering Institute of Canada.

ALBANY—The April meeting of the Albany District Chapter took members through the Albany Packing Div. of the Tobin Packing Co. All aspects of processing and packaging were covered by the tour.

LOS ANGELES—Cargo containers was the topic under discussion at the Los Angeles Chapter's April meeting. A moderator and panel covered the use of cargo containers and their relationships with other material handling equipment. Moderator was **Hi Smith** (Matson Terminals Inc.). Panel: **C. J. Chodzko** (California Cartage Co.); **J. L. David** (Pacific Far East Lines); **George Kelley** (Santa Fe Railroad); **Lt. Colonel F. R. Patterson** (U.S. Army Transportation Terminal).

ROCHESTER — "Stumping the Experts" was the thing to do at the Rochester Chapter's April meeting. Members had a chance to question and argue with a four-expert panel. Panel members were: **Roy Staff**, Staff & Holder, "Battery Maintenance"; **C. P. McCabe**, Otis Elevator Co., "Material Handling Assistance"; **Floyd LeRoy**, Commercial Controls Div. of the Friden Corp., "Receiving, Traffic, Purchasing"; **W. Carl Jensen**, Haloid-Xerox Inc., "Interplant Handling."

HAMILTON—The April meeting of the Hamilton Chapter featured a three-member panel moderated by **Mike Sullivan**. **Art Warburton** (McKinnon Industries Ltd.) spoke on "Preventive Maintenance." **William Grundy** (Steel Co. of Canada) covered "Justifying Capital Equipment." **R. W. MacLaren** (Tuckett Tobacco Co. Ltd.) discussed "Justifying the Engineer's Request for New Equipment."

# NEW

**FT20-24**

**2,000 lb — cushion tires**

**with More Power, More Torque —** Rugged, heavy-duty industrial engine has full 35 hp, 97 ft-lb of torque—the most available in trucks this size.



# NEW

**FTP20-24**

**2,000 lb — pneumatic tires**

**with More Hours on the Job, More Years of Life —** They have "Years Ahead" design, with bonus strength where it counts — along with unequalled, time-saving serviceability.



# NEW

**FTB30-15**

**3,000 lb — cushion tires**

**with More Stability, More Grade-Climbing Ability —** Has the power, traction and balance to climb grades as steep as 40 percent, loaded.



**and now the**

# NEWEST



## LIFT TRUCK

**IN THE 2,000—3,000-LB CLASS**

**FTB30-24 3,000 lb — cushion tires**

**with More Maneuverability, More Operating Advantages—**This newest Allis-Chalmers lift truck, the FTB30-24, has an outside turning radius of only 67 in. — a real space-saver! Like other modern Allis-Chalmers lift trucks, it's outstanding for operator comfort and convenience — safety, too. Available with either POWER SHIFT torque converter drive or standard transmission.

See your Allis-Chalmers material handling dealer for more information about these outstanding new lift trucks — or write direct. Allis-Chalmers, Milwaukee 1, Wisconsin.

BH-112

See these New "Hefty" FT Model Lift Trucks at the Cleveland Material Handling Show, June 9-12, or at your dealer's!



# ALLIS-CHALMERS



# Will this \$30,000 AUTOMATIC PALLETIZER save you money\*?



*The Miller Palletizer automatically positions bags in proper pattern on the roller table. A completed pattern then moves across the rollers to an elevator, which descends one position as each layer is added. At full load position, the stack and pallet move automatically from the elevator for pick-up by a fork truck.*

**IF** your plant is operating around the clock (7 days per week, 24 hours per day), and —

**IF** bag stacking is a part of that operation —

the **MILLER AUTOMATIC PALLETIZER** is almost certain to save you money. This completely automatic, operatorless unit is specifically engineered to slash production costs in two- and three-shift plants.

Just compare the cost of your present stacking operation with that of a Miller Automatic Palletizer (price: around \$30,000).

While you're thinking about it, write for bulletin describing operation of the Miller Automatic Palletizer in detail!

\*Semi-Automatic models available for about \$15,000-\$17,000.

## MILLER ENGINEERING CORPORATION

119-B East Barbee Avenue  
Louisville, Kentucky

Circle 125 on Reader Service Card

## MEN IN THE NEWS

At **Clarke Floor Machine Co.** . . . **C. J. (Dixie) Madeck** has been appointed field representative. He will work with distributors in demonstrating and merchandising the new Clarke Power Sweeper line and the Clarke-A-matic Floor Maintainer. Madeck has been associated previously with the former Lincoln-Schleuter Floor Machine Co. and the American-Lincoln Corp for the past 12 years.



At **Mead Containers, Inc.** . . . **Edward J. Powlenko** is director of packaging engineering service. He will coordinate the structural and technical design services for Mead Container Sales. Before coming to Mead, he was packaging engineer for the Home Laundry Department of General Electric Co. He is a registered professional engineer and a member of S P H E and A S M E.



At the **Communication Products Dept., General Electric Co.** . . . **John E. Strehle** has been appointed Southern Florida District Sales Manager at Pompano Beach. **Jack Najork** has been placed in charge of the G-E two-way radio office in Chicago.

At **United States Rubber Co.** . . . **Donald M. Mahady** is mid-west belting engineer. He will operate out of Chicago and service customers in the Kansas City, Minneapolis, Tulsa, New Orleans, Houston and Dallas branches.

At the **Cushioning Products Div., Armour and Co.** . . . **Paul F. Young, Jr.** is package engineer. He will offer design and technical consultation on all types of packs requiring cushioning.

At **R. D. Werner Co., Inc.** . . . manager of the company's Chromtrim Metal Moulding Division is **William B. Caldwell, Jr.** He was formerly southeastern district sales manager.

At **The Alvey-Ferguson Co.** . . . **John J. Baker** is southern district branch office manager. He will operate from headquarters at Dillon Scale & Equipment Co., Dallas, Texas.

At **The American Sisalkraft Corp.** . . . **Jack Green** and **Charles Hargrave** are taking over Sisalkraft sales for the Southern California-Arizona area. They will operate from headquarters in Los Angeles.

At **Leschen Wire Rope Div., H. K. Porter Co., Inc.** . . . **Jack T. Dilke** is sales representative serving the territory covering central and western California, Nevada, Utah and southeastern Idaho.

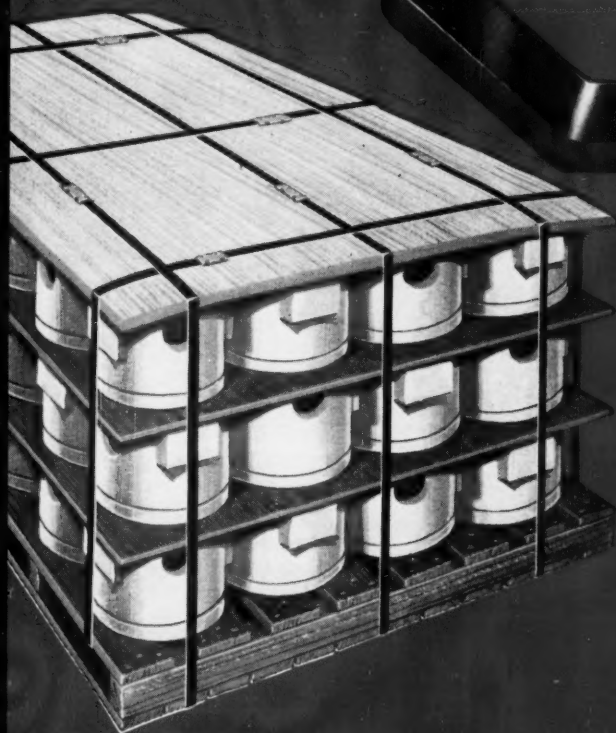
At **National Vulcanized Fibre Co.** . . . **Davis E. Williams, Jr.** is district manager of the Charlotte, N. C. office. He was previously with B. C. Plowden Co., sales representative for National's lines of material handling and textile equipment. Williams is an associate member of the Alabama Cotton Manufacturers Assn and a member of the B.P.O.E.



At **Allis-Chalmers Mfg. Co.** . . . a number of appointments have been made. **Malcolm S. Jones** is manager of the El Paso district of Allis-Chalmers Industries Group. **Robert I. Carlson** is sales representative assigned to the Pittsburgh district and **George E. Piper** is sales representative for the Philadelphia district. And **Bruce C. Halsted** has been named manager of the Richmond district of Allis-Chalmers Industries Group.



# New Brainard HiFlex STRAP



New heavy duty strapping—  
Lighter gauge—Just as strong—  
More feet per pound—  
More package conformity

After exhaustive testing in Sharon Steel laboratories, Brainard offers heavy duty strapping customers a new .031 cold-rolled strap to supplement its heavy duty strapping line. We call it "HiFlex"!

HiFlex features superior flexibility for better package conformity . . . gives more feet per pound . . . handles easier . . . faster. Now available along with .035 in ¾" and 1¼" sizes.

This typical advance in heavy-duty strapping is why we continue to say, "Brainard is the strapping industry's most rapidly expanding line."

Brainard representatives are  
available for consultation.  
Call or write for a sample  
—we'll be there!

DIVISION OF SHARON STEEL CORP • WARREN, OHIO

**BRAINARD**  **STRAPPING**

In Canada: Brainard Steel, Canadian Division, Toronto, Montreal

Circle 38 on Reader Service Card for more information  
SEALS, ACCESSORIES, TOOLS FOR CARLOADING AND PACKAGING

MAKERS OF TENSIONAL, HEAVY DUTY STRAPPING.

# Yale presents The Big Lift for '59...

GREAT NEW YALE TRUCKS AND CONCEPTS THAT  
WILL LOWER YOUR HANDLING COSTS AND  
INCREASE YOUR PROFITS



**YALE**

INDUSTRIAL LIFT TRUCKS  
TRACTOR SHOVELS • HOISTS

**YALE & TOWNE**

Yale Materials Handling Division, a division of The Yale & Towne Manufacturing Company. Manufacturing Plants: Philadelphia, Pa., San Leandro, Calif., Forrest City, Ark. Products: Gasoline, Electric, Diesel and

YALE GIVES MATERIALS HANDLING

# A LIFE INTO THE FUTURE

WITH NEW CONCEPTS IN DIMENSIONS

NEW DIMENSIONS IN PRODUCT DESIGN

NEW DIMENSIONS IN PRODUCT APPLICATION

NEW DIMENSIONS IN SERVICE

# PROFITS

**through Advanced Materials Handling Technology**

# TODAY

Dimension, in the many ways it must be considered in an industrial plant operation, is the only limiting factor to the application of the ingenuity of materials handling techniques. By developing new concepts in the productive utilization of time and the dimensions of space with which materials handling planners work, Yale Materials Handling Division is constantly advancing the science of efficient handling at less cost.

Research and engineering in dimension of product to create a more efficient and productive unit are a continuing challenge to the manufacturer of materials handling equipment. By increasing the operating range of equipment while decreasing the area and time factors required for its use, new dimensions in product permit more effective, more profitable allocation of valuable plant space and productive time.

The skills of a highly trained product design and engineering department of Yale Materials Handling Division are augmented by the resources of the Yale & Towne Research and Development Division, at Valley Forge, Pennsylvania, dedicated to the design of materials handling equipment which anticipates future industrial needs and makes available, today, equipment for better handling at less cost.



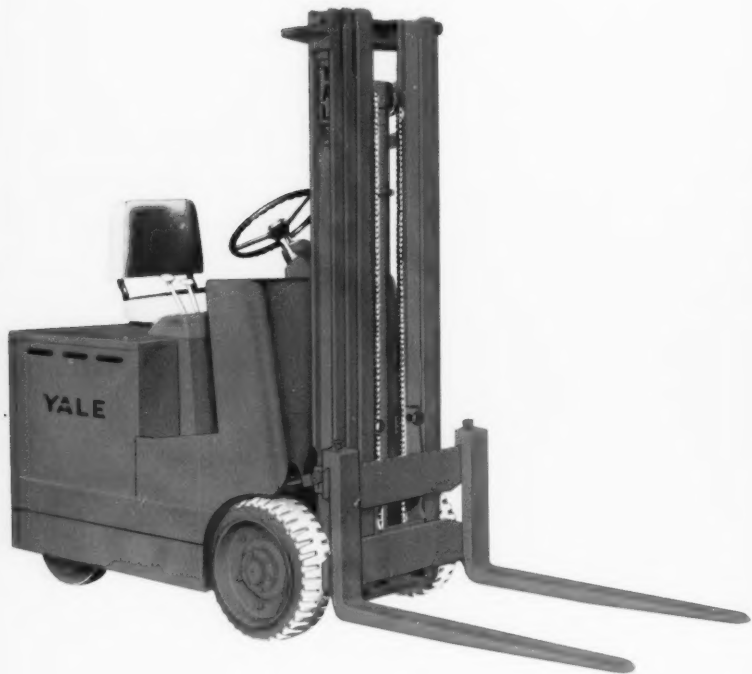
## NEW YALE GAS TRUCK LINE



### **COMPACT DIMENSIONS, 2-SPEED AUTOMATIC TRANSMISSION PROVIDE FAST CYCLE OPERATIONS**

Two speed range automatic transmission—gives excellent gradeability and high tractive effort. 80 feet per minute lift with full load—fast stacking action, speeds operations. Compact dimensions—for high maneuverability, short turning radii. Widest channel roller spacing plus side thrust rollers—resist off center loading, lessen channel wear. Carriage, designed for use with all types of attachments, is roller mounted and has four side thrust rollers. Trail assembly mounted on dual articulating pins supported in rubber—a Yale exclusive—provides much greater stability, a cushioned ride. Gasoline or LP-Gas. Cushion or Pneumatic tires. Capacities: 3,000, 4,000, 5,000 lbs.

## NEW YALE LOW-SILHOUETTE ELECTRIC TRUCK LINE



### **PRECISE SPEED CONTROL COMBINED WITH SHORT-TURNING MANEUVERABILITY**

*Mechanically actuated-carbon pile speed control* — gives smooth starts and acceleration — produces infinite motor speeds! *Easy steering* — dual castor wheels mounted on ball bearings! Short turning radius — good maneuverability! *Low profile* — 71" mast height. Available with Triplex Mast. Other features include — hydraulic wheel brakes — removable battery box — H-I single lever control for multiple function attachments. Capacities: 2,000, 3,000 lbs.

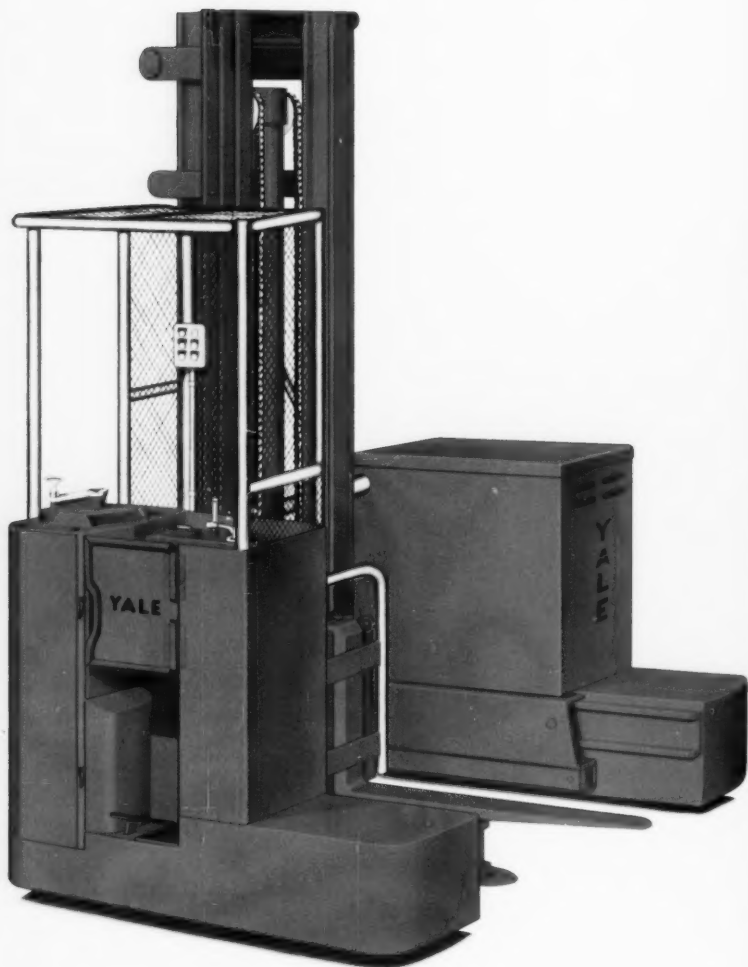
# NEW YALE END CONTROL ELECTRIC TRUCK LINE



## **SPEEDS OPERATIONS THROUGH RECYCLING SPEED CONTROL**

*Automatic recycling speed control — speeds operations! Smooth acceleration — 4 speeds forward and reverse with time delay between speeds for smooth acceleration! Brakes — mechanical brakes in wheels — step up to apply! Steering wheel positioned for operator comfort and safety. Short turning radius! Available with Triplex Mast. H-I single lever control for multiple function attachments. Cap.: 2,000, 3,000 lbs.*

# NEW YALE SIDE-LOADER ELECTRIC TRUCK

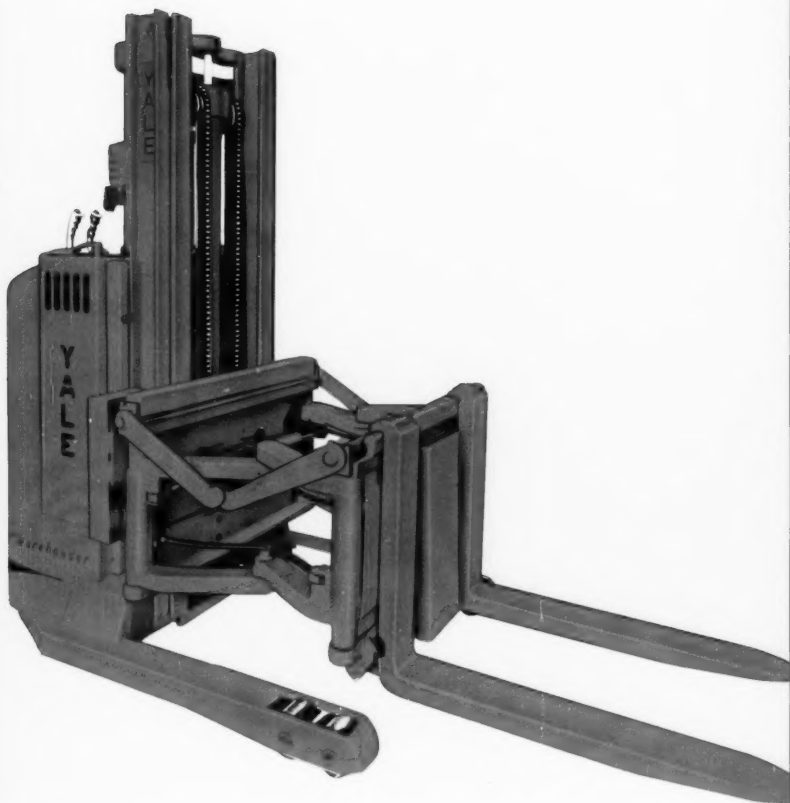


## PROVIDES NEW CONCEPTS IN WAREHOUSE HANDLING

*Safe, fast handling in narrow aisle at extreme heights—increases storage space. Easy accurate load positioning—cuts cycle time in rack position by 50 per cent. Handles palletized or long loads—high flexibility of application. 24 Volt system—gives high lifting speed. Wheels rotate 90 degree—maneuverability in cross aisles. Yale Triplex Mast—rugged, stable, high lift. Capacity: 3000 lbs.*



# NEW YALE WAREHOUSER LINE



## BUILDS PROFITS 3 WAYS

*More power!*—through 24-volt battery system (12-volts if desired). This pays off in faster lift and travel. Faster cycle operations. *More time on the job!* Maintenance costs minimized because all components are in one accessible compartment. *More years on the job!* Durable frame, outriggers and mast are single welded unit. Service access doors protected against bumps. *Operator advantages!* Comfortable driver cockpit! Easy-to-handle controls! Better visibility! Available in Straddle and Extend-A-Load models—2,000, 3,000 and 4,000 lbs.

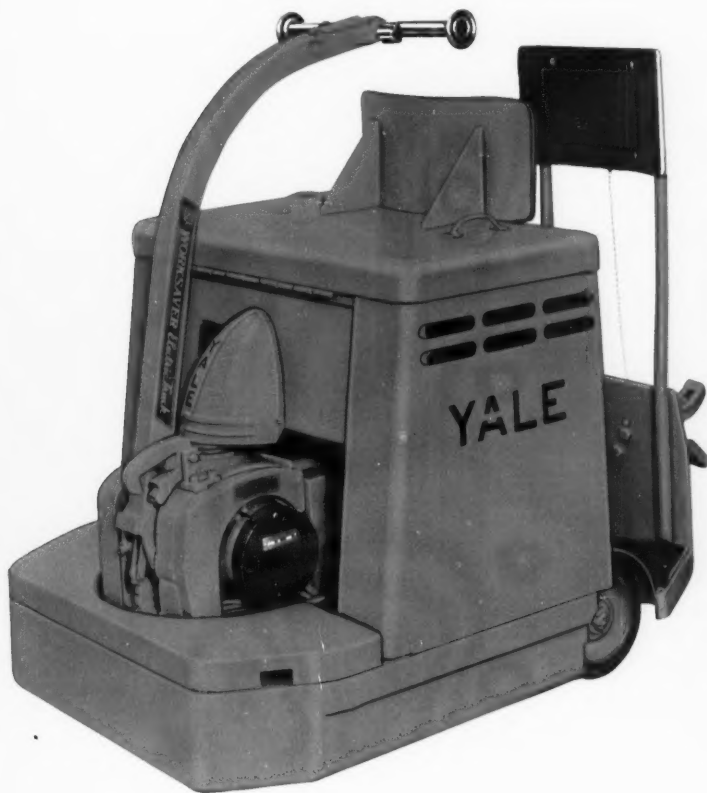
## NEW YALE GASOLINE TRACTOR LINE



### **SPEEDS HAULING OPERATIONS, INDOORS AND OUT**

*Smooth starting and pulling up to full tractive effort! Fluid coupling and large diameter clutch combined for long life in roughest operation. Rugged design—engineered for ease of maintenance. Four-speed transmission. Available in L.P.-Gas. 3,000, 4,000, 5,000 lbs. ultimate draw bar pull capacity!*

## NEW YALE WORKSAVER TRACTOR LINE



### **SPEEDS WAREHOUSE AND TRAILER-TRAIN ORDER PICKING ECONOMICALLY**

*Maximum hook-unhook speed! Operator positioned with complete visibility and access to coupler! Operator benefits! 17" compartment! Large curved steering handle with maximum leverage from minimum effort! 5½" platform height for ease of entry and exit! Sponge rubber floor and guards! 9 x 4 rubber trail wheels! Smoother ride—good load distribution—long wheel wear! Three-speed control forward and reverse! Dynamic braking plus full positive mechanical brake! Battery: 12-volts. Capacities: draw bar pull, 200 lbs.—maximum 700 lbs.*

# NEW YALE ELECTRIC TRUCK



## COMPACT, HIGH SPEED FOR FASTER CYCLE OPERATION

Higher capacity trucks for Yale's popular K51W line. *Small turning radius*—high maneuverability. High lifting speed and travel speed—fast operations. *Compact design*—works in narrow aisles. Easy caster wheel steering—lowers operator fatigue. Yale Magnetic Cam-O-Tactor control—*smooth acceleration* through four speeds, forward and reverse. Full line capacities: 3,000, 4,000, 5,000 and 6,000 lbs.



# YALE G-52 WITH NEW TRIPLEX MAST



## DOES DOUBLE DUTY— SAVES SPACE, TIME

*Mast up!* High reaching Triplex Mast stacks high—makes full use of air rights. *Mast down!* Truck maneuvers easily in low headroom areas. *Greater load stability!*—through interlocking I-beam construction. Exclusive Yale fluid coupling. *Economy!* High lift of mast and high maneuverability and minimum dimensions of truck combine to save storage space. Smooth ride saves wear and tear—lowers maintenance costs. Good visibility, simple operation. Cap.: 2,000, 3,000 lbs.

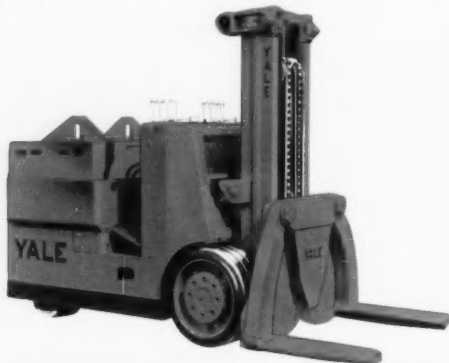
## YALE HEAVY DUTY SERIES G-5 GASOLINE TRUCK



### FEATURES RUGGED DESIGN—FAST CYCLE OPERATION

*First compact, heavy capacity lift truck to offer the economies of gasoline operation! Powerful V-8 industrial engine! For use with forks, single ram, hydraulic split ram or specialized attachments. Capacities: 15,000 to 20,000 lbs. Speeds cycle operations! Instant power for fast acceleration from fully automatic torque transmission with 2 speed ranges. Compact! Turning radius only 110". Safe! Operator positioned for extra measure of visibility. High underclearance. Available with LP-Gas.*

## YALE HEAVY DUTY K-410 ELECTRIC TRUCK



### COMBINES HEAVY INDUSTRY POWER, SHORT TURNING RADIUS

*For heavy industry! Accommodates 60 to 72 volt battery. Telescopic, hydraulic lift gives maximum lift per overall height. For use with forks, single ram, hydraulic split ram or specialized attachments. Available with engine-generator power unit. Capacities: 12,000 to 20,000 lbs. Compact! Turning radius only 93". Moves easily in and out of boxcars. Economical! Designed for easy serviceability. Speeds cycle operations! Hydraulic tilt assures greater load stability in travel.*

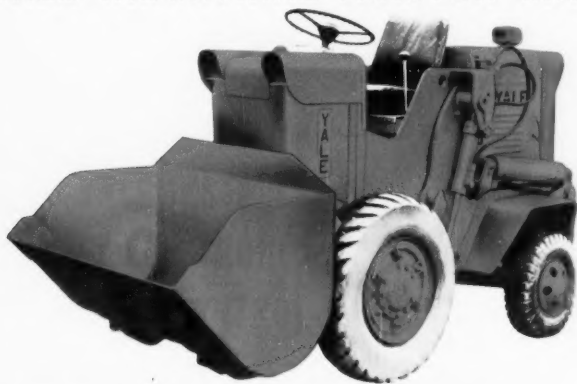
## YALE G-3 SERIES GASOLINE TRUCKS



### WIDE ANGLE VISION—300% MORE VISIBILITY

*Rugged!* Carries loads of 15,000 to 20,000 lbs. over rough terrain! *Twin cylinder lifting!* Low center of gravity! I-beam frame assembly! *Extra-durable construction!* Stability never before attainable in a truck of this capacity! *Fast acting!* Travels at 20 mph.! *Lifts at up to 60' a minute!* Extra-fast controlled lowering! *Extra visibility!* Widely spaced uprights! Excellent ground visibility! Easily convertible to LP-gas. Choice of fluid coupling, standard transmission or automatic torque transmission.

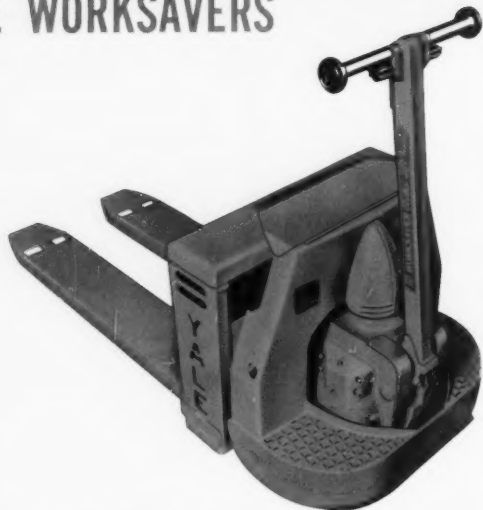
## YALE INDUSTRIAL TRACTOR SHOVEL



### DOES 10 HOURS' WORK IN AN 8-HOUR SHIFT

*Precisely controlled horsepower!* 72 hp., 6 cyl. engine provides smooth power through matched torque converter and Yale torque transmission (fully automatic). One speed both ways—*inching control*—accelerates to 13 mph. in 5½ sec. *Performance!* 2,500-lb. carry capacity. Exclusive 45° bucket tip back for faster loading, lowest carry position. 6' dumping clearance—only 73" turning radius. *Safety!* Safety-curve lifting mechanism members mean extra safety for operator. Front and back working lights. Does 25% more work per hour—10 hours' work in an 8-hour shift.

## YALE WORKSAVERS



### **SMALL LIGHTWEIGHT TRUCKS WITH BIG-TRUCK POWER**

Compact design—high maneuverability. Ideal for use in any production, shipping, storage area—over low load floor, on freight elevators, in cramped quarters where standard trucks cannot operate. Capacities up to 7,500 lbs.

## YALE HAND TRUCKS



### **FOR LOW-COST INTERDEPARTMENTAL HAULING**

Ideal for short distance hauling of heavy single-unit or multi-unit loads. Operate singly or as part of integrated system. Platform, pallet, rollaway jack and famous lightweight Zephyr models. Capacities: 1,000 to 10,000 lbs.





\*Replacement parts depots assure *immediate* availability of parts at  
●your local Yale sales and service dealer

**Parts when you need them**  
**YALE INSTALLS**  
**FIRST ELECTRONIC**  
**PARTS CONTROL**  
**SYSTEM IN THE**  
**LIFT TRUCK INDUSTRY**

Heart of Yale's new parts system is the IBM Memory Marvel, Ramac, designed to provide top service.

Effective decentralization of parts stocks *where you need them.*

Electronic inventory control of these stocks to make them available *when you need them.*

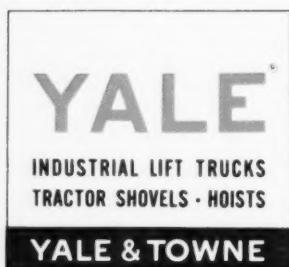
The ability to project requirements for new equipment in order to have them on hand in convenient locations *before you need them.*

Processing of customer parts orders with greater speed and accuracy.

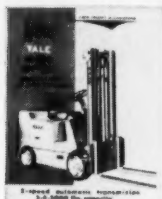
The ability in case of customer emergency to check national inventories immediately and speed the shipment of the parts from the nearest or most convenient location.

*Ramac — another first in Yale's constant effort to provide the best in materials handling products, methods and services.*

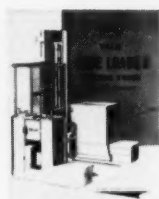
CONTINUOUS  
YALE RESEARCH PRODUCES  
A STEADY FLOW OF  
NEW CONCEPTS  
IN MATERIALS HANDLING.  
YALE ENGINEERING  
AND PRODUCTION  
GIVE YOU THE PRODUCTS  
TO PUT THESE NEW CONCEPTS  
INTO PRACTICAL USE



Yale Materials Handling Division, a division of The Yale & Towne Manufacturing Company.  
**Manufacturing Plants:** Philadelphia, Pa., San Leandro, California, Forrest City, Arkansas.  
**Products:** Gasoline, Electric, Diesel and LP-Gas Industrial Lift Trucks • Worksavers • Hand Trucks • Warehouseers • Industrial Tractor Shovels • Hand, Air and Electric Hoists



1. G-54 Gasoline Trucks



2. Side Loader—Electric



3. K-58 Electric Truck



4. K-47 End Control Electric



5. Warehouse Line



6. Gas Tractor



7. Worksaver Tractor



8. G-5 Series Gasoline Trucks



9. K-410 Electric Truck



10. G-3 Gasoline Series



11. Tractor Shovels



12. Worksaver Line



13. K-51W Electric Truck



14. G-52 Triplex Mast

And you'll want to find out more about...

15. Detailed literature on Yale's full line of Hand Lift Trucks.
16. Yale's leasing plan, with complete maintenance, that puts Yale trucks on the job—and keeps them there!
17. Yale's facilities layout program for determining materials handling problems and solutions. (Consists of scale models, templates, vis-o-graphs and a booklet explaining plant layout procedures.)

Check coupon today for any of the 17 Yale subjects that interest you. Full detailed information will be sent out immediately.

Circle 193 on Reader Service Card

Send for  
any or all  
of these free  
booklets—  
learn how  
Yale Industrial  
Lift Trucks  
are designed  
better,  
built better  
and are better  
on the job!

Use coupon today

The Yale & Towne Mfg. Co.,  
Yale Materials Handling Div.,  
Philadelphia 15, Pa., Dept. ZT-H2

Please send me the free material checked.

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7  
☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17

Name

Firm name

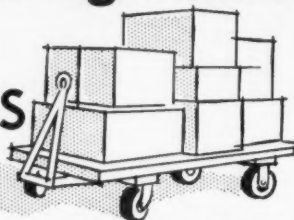
Address

City

Zone  State

# CHECKMATE Rising Costs

by moving to  
**Divine WHEELS**  
and CASTERS



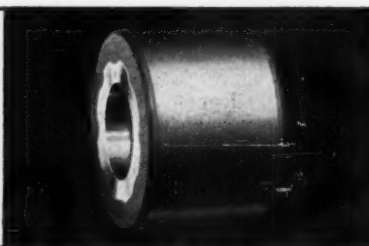
## A Wheel or a Caster for Every Load, Every Floor!

Materials gotta be Handled. To cut down the overhead underneath your present trucks, or new ones, you need wheels and casters with cost-conscious engineering behind them.

Divine offers a complete line of wheels and casters. Wheels range from grooved wheels to fit inverted angle iron tracks to steel or iron, rubber and such highly specialized floor protective wheels as miracle Durothane, Formica or the exclusive "Canvasbak" Canvas Cushion Wheel. These wheels are also available in a complete range of rigid and swivel casters.

### Durothane Wheels

This new miracle tire of polyurethane has all the resiliency and operating advantages of natural rubber with a normal life expectancy of five times rubber. The tire is cast direct to the hub in a manner that prevents separation. Protects fine floors, yet can be used with equal advantage on a rough factory floor.



### Formica Phenolic Molded Wheels

These wheels protect fine floors, even when used under heaviest loads. The full-laminated canvas tire has 40% more resistance to shock than any ordinary molded or macerated construction. The alloy aluminum center provides a firm seat for the bearings and permits a wide variety of accurate machining. The tire is renewable.



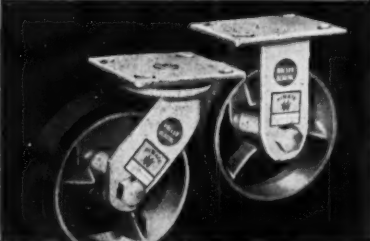
### "Canvasbak" Canvas Cushion Wheels

These wheels will handle your toughest trucking job on any floor, and will outwear iron . . . yet tiptoe across your finest floors without leaving a mark. They cushion shock, and are guaranteed for a service life of at least ten years under normal operating conditions.



### Swivel and Rigid Casters

A full range of swivel and rigid casters—light, medium and heavy-duty. Each available with any of the wheels mentioned above. In addition to standard designs, many "specials" are available to give the low-cost answer to peculiar problems.



Write today for complete sizes and prices.

**Divine Brothers Company** UTICA, NEW YORK  
Circle 66 on Reader Service Card for more information



## Stapler Speeds Cover Fastening

ABOUT 12,000 batteries pass through the shipping station daily at the Tampa, Fla., branch of Globe-Union, Inc. An air-driven Bostitch stapler helps package them at a pace that keeps up with this production.

The company reports that because of its satisfactory performance, other company branches are switching to air-operated staplers.

The whole battery (everything but the containers) arrives into the shipping department via a conveyor belt. There, vent caps are installed, and date codes applied.

The belt travels in front of large bins containing corrugated padding and slip covers. The bins are in 12 sections, 60-feet long, and 10-feet high. Markers indicate sizes and battery model to be covered.

Padding and slip covers are made up and placed over the battery top. The Bostitch stapler fastens one staple across the seams of the regular-slotted corrugated covers. The covers measure 8 x 10 x 9 inches. They give protection to the battery tops in stacking during storage and shipping.



At the end of the conveyor line, batteries are placed on pallets that hold 50 batteries each. They go to storage or to waiting trucks with the help of a floor jack pallet lift.

MATERIAL HANDLING ENGINEERING





Whether it's for the largest crane or smallest hand lamp, there's an APPLETON Reelite

to pay out and retract cable with unfailing precision, safety, ease of handling. Made of finest quality materials and to APPLETON-engineered standards of perfection, they are the best you can buy for the purpose. Next time you need a retractable cable mechanism, investigate APPLETON Reelites... the finest!

Custom designed model Reelites can be developed to fulfill your requirements. As many as 36 conductors can be built into a single compact Reelite. Explosion-proof, weather-proof, vapor-proof... air, fluid, torque and tool-balance Reelites are all part of the vast variety of APPLETON reel models. Many Reelites come equipped with clutch or limit switch arrangements built within the unit.

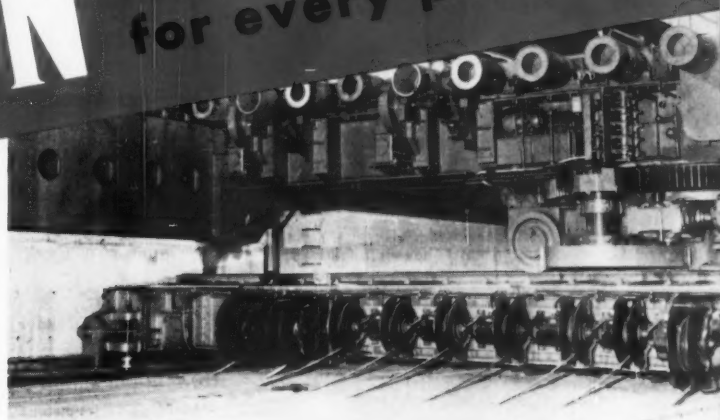
Gantry Crane with special (motor driven) constant duty Reelite paying out 500 ft. of 4/0 3-conductor 600 volt Type "W" cable

# APPLETON®

## REELITES\* for every purpose

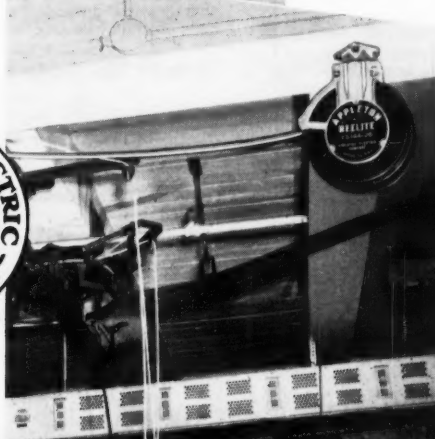


Installation using a custom built Type "EG" constant duty automatic take-up Reelite for unloading steel from gondola cars



Battery of 9 various Reelites mounted on moveable machine providing a wide variety of individual power leads to this large stamping operation for power and control

Full  
Information  
On Request  
... No  
Obligation



"YS" Reelite mounted to pay out cable for roving overhead electric hoist. 335° swivel. Provides maximum flexibility without dangers of snagging, plus elimination of electrical hazards

*\*Only APPLETON Makes Reelites*  
Circle 217 on Reader Service Card for more information

**APPLETON ELECTRIC COMPANY**  
1701 Wellington, Chicago 13, Ill.

Also Manufacturers of:



Explosion-Proof Fixtures



Cutler Beams



Industrial Lamps



3T Series Connectors



## USEFUL LITERATURE

### Automatic Carton Selector:

An electronic device for identifying products by automatic reading of code markings printed on the product cartons. Bulletin 27958 gives full information. Signal output of the 410 model is most often employed to control conveyor switches. Other uses are selective counting and inventory control. Cost savings are realized in situations where material transfers between departments favor combining products onto one conveyor line, reseparating at destination.

*Atronic Products, Inc.*

**Circle 301 on Reader Service Card**

### Low Cost Transporter:

Model F-10 truck has 1000 pound capacity. Ideal for cartons, long stock, mixed freight, maintenance supplies, baggage, fire equipment, and as personnel transporter. Has 18 square feet of deck area. Bed is 49 inches wide by 84 inches long. Clear area back of the driver is 48 inches. Has completely enclosed industrial type combination transmission. Shifting clutches, differential, axles all run in one oil reservoir. Connected to engine with automotive drive shaft.

*The Prime-Mover Co.*

**Circle 302 on Reader Service Card**

### Heavy Duty Wheels:

"Durothane" wheels give long service under severe trucking conditions. Durothane is a polyurethane elastomer. It's bonded to a metal core by a liquid casting method. Mechanical device on the wheel rim locks the tire in place. It will not separate or break loose even under maximum loads. Will not splinter a wooden floor or crack a concrete floor. Operates efficiently even on floors that are already rough or broken. Industrial truck wheels equipped with Durothane tires are now available for all makes and models of factory trucking equipment.

*Divine Brothers Co.*

**Circle 303 on Reader Service Card**

### Crane-Grab Catalog:

Catalog covers complete line of Bushman jib cranes, gantry cranes, grabs, buckets, coil-up-enders, and vacuum lifts.

*H. L. Bushman Co., Inc.*

**Circle 304 on Reader Service Card**

### Wooden Pallet Specifications:

Standards are available for permanent types of wooden pallets made from Douglas fir, hemlock, and larch species of lumber. Publication is particularly designed to help pallet users

located in the western states. Wooden pallet industry has created three new grades for wooden pallets made from west coast woods: select, standard, and commercial. Specifications cover species of lumber, dimensions of pallet parts, tolerances, methods of fastenings and their applications, and permissible and non-permissible defects. New specifications do not apply to warehouse pallets made from hardwood species of lumber.

*National Wooden Pallet Mfg.'s Assn.*

**Circle 305 on Reader Service Card**

### Dramatic Role of Paper:

Practical ideas for revolutionary uses of paper are illustrated in full color in "The World Of Mead", just off the press. It shows paper that withstands fire, paper used as a tropical fish aquarium, as well as more conventional papers for everyday packaging. You'll learn interesting facts about paper reading it.

*The Mead Corp.*

**Circle 306 on Reader Service Card**

### Sew Bags Automatically:

Catalog sheets on Minneapolis bag closers describe and illustrate several models of bag closers for various uses. They show portable and stationary models, for large and small bags, conveyorized or for manual use. Complete specifications included in the literature.

*Minneapolis Sewing Machine Co.*

**Circle 307 on Reader Service Card**

### How Important Is Marking?

Marking is important enough that it can save you money according to a catalog just published. It describes

marking methods that can modernize your entire operations, using the latest hand stamping methods. The literature describes hand stencil machines that use stencils cut on a typewriter like a duplicator stencil, or cut as a by-product of the billing operation. It also lists money-saving case histories. Yours for the asking.

*The Multistamp Co.*

**Circle 308 on Reader Service Card**

### Corrugated Box Holds Water:

The latest issue of Package Laboratory News describes how a packing house ships fresh green onions, topped with ice, in boxes made of M/R corrugated board. M/R is a completely waterproof board, identical to conventional corrugated in other respects. The house organ also shows other money-saving uses of corrugated boxes, as well as emphasizing the use of corrugated point-of-purchase displays.

*Hinde & Dauch*

**Circle 309 on Reader Service Card**

### Batteries In Action:

A case history from "Modern Battery Applications" tells how electric trucks exclusively are employed in a high-volume material handling operation. Moving an estimated million light bulbs a day through a strategic distribution center calls for a large fleet of trucks. In a two-shift material handling operation, loading, unloading, stacking, and storing are handled with top efficiency.

*C & D Batteries, Inc.*

**Circle 310 on Reader Service Card**

### Hydraulic Lifts:

Catalog F-518 gives information on the company's complete line. Specifications are listed. An aid to model selection is presented. E-Z Lift models have adjustable foot operated dual floor locks. An extra long pumping handle offers easiest possible operation of all hand operated models.

*Crown Controls Co., Inc.*

**Circle 311 on Reader Service Card**

### "How To Pack It"

A 32-page illustrated book in two sections. One is devoted to basic corrugated box designs, and the other to special corrugated box designs. Helpful information is presented on the selection of the proper corrugated packaging for a new or an existing product. Special designs shown range from a

### "Guide To Mobile Radio":

A new Gernsback library book written to give a clear picture of mobile radio functions and operation. Particularly valuable for the technician or beginner who wants to specialize in this branch of electronics. What is Mobile Radio? How does it work? What can it do? What equipment is needed? What are the circuits like? What's in it for the service technician? How about licensing? Those are typical questions that are answered. Written by Leo G. Sands, this book No. 77 is available for \$2.85. Write to Leo G. Sands, 268 Godwin avenue, Ridgewood, New Jersey.



Above is a typical Erickson Low Lift Platform Truck. Standard models up to 10,000 lbs. capacity. Custom models up to 20,000 lbs. capacity. Platforms custom built up to 6 feet wide and up to 24 feet long.

# *Erickson*

## AR-TIC-U-LA-TED STEERING

*URNS SHORT...LASTS LONG!*

This articulated pivot (illustrated above) reduces turning radius to a minimum and gives the advantages of four-wheel steering. It entirely eliminates weaknesses and rapid wear common to complicated conventional steering mechanisms. It is similar to the system used on large, well-known earth movers.



**SEE ERICKSON**

THE

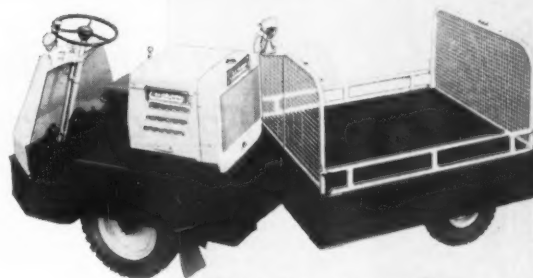
**Workhorse of Lift Trucks**

**AT BOOTH R-1500**

Material Handling Institute's Exposition  
Cleveland Auditorium • June 9-12



Erickson Hi-Lift Platform Trucks have various platform sizes and lifts available. Stand-up cockpit (as shown) or operator's seat. Standard automotive controls are a feature of all Erickson Platform Trucks.



Erickson Kart-All materiel-personnel carriers are available with scissors-lift platforms. Airline model shown above has standard baggage bed, 4,000 lbs. capacity. Custom models built with beds up to 8 ft. wide by 24 ft. long, up to 12,000 lbs. capacity. Hydraulic outriggers obtainable for stabilizing Kart-All when loading or unloading heavy loads.

**ERICKSON POWER LIFT TRUCKS, INC.**

215 St. Anthony Blvd. N.E., Minneapolis 18, Minn.





## GOOD RULE TO FOLLOW WHEN BUYING MATERIALS HANDLING EQUIPMENT

Choose a Make Whose  
Builder Thinks Enough Of  
His Own Good Name to  
Equip His Product With  
**CONTINENTAL**  
RED SEAL POWER

Visit the Continental Display  
Booth 1511  
MATERIALS HANDLING SHOW



**Continental Motors**  
**Corporation**  
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6 EAST 45TH ST., NEW YORK 17, NEW YORK • 3817 S. SANTA  
FE AVE., LOS ANGELES 58, CALIF. • 6210 CEDAR SPRINGS  
ROAD, DALLAS 9, TEXAS • 1252 OAKLEIGH DR., EAST POINT  
(ATLANTA) GA. • ST. THOMAS, ONTARIO



Circle 48 on Reader Service Card for more information

### ... USEFUL LITERATURE

simple one piece folder to an unusual octagonal box for shipping hose, conduit and rope.

*Hinde & Dauch*

Circle 312 on Reader Service Card

### Reduce Steel Packaging Costs:

"11 Ways to Reduce Costs and Improve Your Packaging of Steel" is the title of a brochure just published. It highlights some of the more successful packaging operations in the steel and steel fabricating industries today. Set-ups range from complete automation to simple hand strapping tools.

*Signode Steel Strapping Co.*

Circle 313 on Reader Service Card

### Safe Work Above Floor Level:

Adjustable level work platforms give safe, relaxed work. They are mobile, flexible, steel constructed. Ideal for production and maintenance work at high levels inside or outside. Ample working space for three men. Literature gives full information also on mobile access lifts, safety-step ladders. A size and type on hand for every need.

*Ballymore Co.*

Circle 314 on Reader Service Card

### Automatic Pallet Loader:

Complete pallet loading system consists of components synchronized to form a simple operation. They are the stacker, conveyor, pusher, and the taper. Literature shows typical layouts and dimensions. Sketches show complete operation. Manufacturer says that low cost of machine and installation can make it pay for itself in four to nine months.

*Lathrop Paulson Co.*

Circle 315 on Reader Service Card

### Lightweight Crane Scale:

A "Sensater" hydraulic crane scale for every industry. Capacities are 1000 to 20,000 pounds. Operates under extreme conditions (dust, grit, moisture, corrosion, impact); eliminates need for a central weighing station. Scale meets accuracy specifications of the Bureau of Standards. Bulletin M-25 gives complete information.

*Martin-Decker Corp.*

Circle 316 on Reader Service Card

### Crane-Excavator Data:

Specification bulletin 350-1 covers the new series "350" Bantam crane-excavators. The 11-ton carrier-mounted Model T-350; 11-ton self-propelled Model CR-350; and the Model C-350 crawler-mounted unit are detailed.

*Schild Bantam Co.*

Circle 317 on Reader Service Card

### Load Control Equipment:

Catalog No. 150-R covers products made by a manufacturer of basic and

MATERIAL HANDLING ENGINEERING



specialized cargo tiedown and load control equipment. Products include rope and webbing cargo nets, track and track fittings, stud, stud attachment and pan fittings, strap and rope tiedown assemblies, and strap assembly hardware and tiedown buckles. Literature gives full information and specifications.

*General Logistics  
Div. of Aeroquip Corp.*

**Circle 318 on Reader Service Card**

#### Non-Rust Elevator Bucket:

Plastic "Dura-Buket" today is seven times stronger than original model, according to the manufacturer. It withstands moisture, chemical and temperature conditions. It can not rust or corrode. It is spark and static proof.

*Dura-Buket Div.  
National Oats Co.*

**Circle 319 on Reader Service Card**

#### Smooth Conveyor Chain:

Stainless steel "Flat-veyor" is designed to provide a conveyor chain that is stronger to stand heavier loads. It is corrosion and wear resistant, easy to clean. It allows a lower coefficient of friction. Precision construction of the plates and connecting pins assures smoother, quieter operation.

*Atlas Chain & Mfg. Co.*

**Circle 320 on Reader Service Card**

#### Portable Air Hoists:

Two lightweight portable air hoists have been designed to be easily moved and installed by one man. The 1000 pound capacity hoist weighs 39 pounds, lifts its rated load at 45 feet per minute; 2000 pound model weighs 56 pounds, lifts at 22 feet per minute. Hoists have an aluminum alloy housing which measures 12½ inches in overall length, 5¼ inches in diameter.

*Ingersoll-Rand Co.*

**Circle 321 on Reader Service Card**

#### Industrial Tires-Wheels:

Company makes and services a complete line of industrial tires, both for original equipment and replacement use. Both pneumatic and solid type are designed to resist cutting, gouging, and chipping. Literature gives data on vulcanized-on wheels and retreads, zero pressure tires and wheels, pneumatic tires and wheels, and on solid tires.

*B. F. Goodrich Tire Co.*

**Circle 322 on Reader Service Card**

#### Reel Racks Featured:

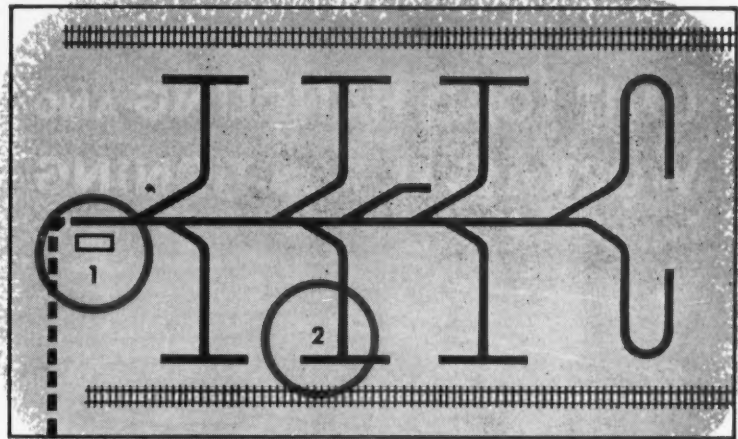
A standardized structural frame is available with a slot engaging hook to position and hold any kind of reeled material. This rack lifts reels off the floor and permits dispensing direct from the rack. Catalog 182 will give you details of this system.

*Bernard Gloekler North East Co.*

**Circle 323 on Reader Service Card**

#### Lightweight Air Hoists:

Full information on two lightweight air hoists is given in this Ingersoll-



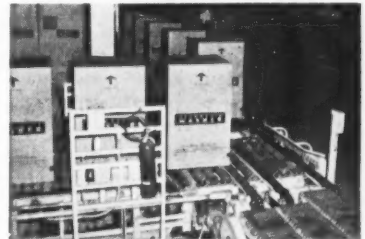
## Automatic Warehouse Conveyor... handles 1200 appliances an hour

A single huge warehouse takes the output of several production buildings. A single busy conveyor line brings in trains of washers, dryers, ranges and dishwasher-sinks. As each train passes the control console, the operator pushes a button that tells the system where to deliver the train—to any one of nine spurs, serving truck dock, railroad sidings and warehouse storage. A memory system takes over and no human attention is needed until the appliances are at rest on their designated spur.

Mechanical Handling Systems conceived, designed and executed this marvelously efficient conveyor system to save time, money and space for one of the largest appliance makers. The same fresh thinking and ingenious engineering can help you solve your materials handling and production problems.



**1** Push button dispatching. The control console at the start of the warehouse conveyor system. Lights on facsimile layout, on console top, report possible stoppages anywhere on the lines.



**2** End of a spur serving rail siding. Appliances index onto transfer, move sideways onto gravity conveyor for loading into cars. Transfer fills left bank first, then automatically feeds to right.

Visit us in **BOOTH 314, Main Exhibition Hall,**  
**MATERIALS HANDLING EXPOSITION**  
Cleveland, June 9-12



**Mechanical Handling Systems Inc.**  
**AND SUBSIDIARIES**

Manufacturing Engineers

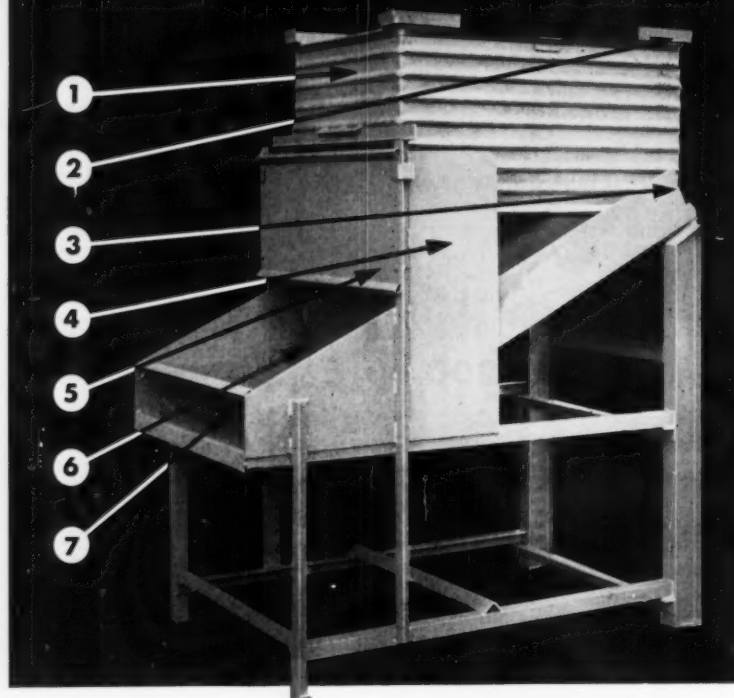
4620 Nancy Ave., Detroit 12, Michigan

Offices in Principal Cities

FACTORIES: Detroit, Mich. • Fairfield, Iowa • Albany, N.Y. • Clark, N.J. • Windsor, Ont.

Circle 212 on Reader Service Card for more information

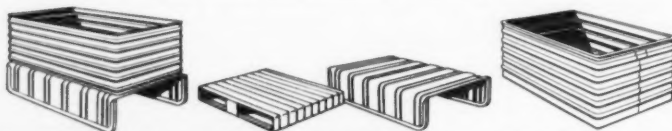
## Work-O-Matic\* Box and Stand for UNIT LOAD HANDLING AND WORK-LEVEL POSITIONING



### Check these 7 Work-O-Matic features

1. **WORK-O-MATIC DROP BOTTOM BOX.** Heavy gauge corrugated steel construction. Square corners.
2. **CORNER STACKING ANGLES.** Safe tiering without shifting. Saves floor space.
3. **HINGED CHUTE BOTTOM.** As forks of truck are lowered, hinged bottom opens and parts slide into tray.
4. **WORK POSITIONING STAND.** Receives box from back or sides. Safely and easily transported by lift truck.
5. **CONTROL GATE.** Vertical adjustment controls flow of parts into tray.
6. **WORK-LEVEL TRAY.** Reservoir feature eliminates work stoppage when changing boxes.
7. **INCLINED TRAY END.** Assures parts accessibility. Speeds job changes.

In addition, Union Metal offers industry's broadest line of conventional type material handling containers. Write for complete catalog information. Address The Union Metal Manufacturing Company, Canton 5, Ohio.



\*Registered Trade Mark

**UNION METAL**  
Material Handling Equipment

See our live  
demonstration  
at the **M.H.I. SHOW**  
**CLEVELAND**  
June 9-12

Circle 179 on Reader Service Card for more information

## . . . USEFUL LITERATURE

Rand brochure No. 5224. Small, compact, and highly portable, one weighs only 39 pounds. It has 1000 pound capacity and lifts its rated load at 40 feet per minute. The other, the 2000 pound capacity hoist weighs only 56 pounds and lifts at 20 feet per minute.

*Ingersoll-Rand*

Circle 324 on Reader Service Card

### Fast, Clean Conveying:

Bulletin 208 describes positive pressure pneumatic conveying systems. Major components are illustrated. A chart is included, designed to help determine the horsepower and line size required for systems ranging from 1000 to 60,000 pounds an hour capacity. Special series of schematic drawings show various diverter valve types available.

*Sprout, Waldron & Co., Inc.*

Circle 325 on Reader Service Card

### Material Handling History:

Development of the industry as reflected in the story of Revolver is shown in this booklet. Last pages show basic models of the most common types of company equipment, as portable elevators, power and hand lift trucks, hydraulic and traction elevators, carboy and barrel dumpers, portable cranes, positioners, storage racks, turntables, etc.

*Revolver Co.*

Circle 326 on Reader Service Card

### Tie Bundles the Easy Way:

The Pak-Tyer tying machine is described in folders just released. Pak-Tyer is an all-purpose automatic bundle tying machine operating at 45 to 50 single ties or 25 to 30 cross ties a minute. Mounted on a portable stand. Uses cotton twine for tying. Five models available, for different size packages.

*Felins Tying Machine Co.*

Circle 327 on Reader Service Card

### Narrow-Aisle Truck

A 7-page circular describes a narrow-aisle, rider-type, electric tiering truck with a 24-volt electrical system. Circular 35K contains complete operating and maintenance details on the Model MN truck. Components are photographed and explained in detail.

*Lewis-Shepard Products, Inc.*

Circle 328 on Reader Service Card

### Conveyor Chain:

Sprocket chain welded to linkplates for conveying food, beverage, automation, packaging, and similar handling operations is depicted in this 4-page bulletin.

*Diamond Chain Company Inc.*

Circle 329 on Reader Service Card

### Cement Manufacturing Data:

All phases of cement manufacturing

# MODERNIZE CHOOSE HOISTS THAT SAVE THE MOST

You name the hoisting problem. Whatever the requirements, there's an MMM hoist to handle your lifting with money-saving efficiency. Call your nearby Shaw-Box Distributor for practical help in selecting the best type of hoisting equipment for each load handling task. Or, write us for literature.

## AIR HOISTS



**Load Lifter Air Hoists** with wire rope load line. 1 to 15 tons. The 5-cylinder radial motor has a high starting torque; provides smooth operation at all lifting speeds. Speeds infinitely variable to 37 FPM, depending upon capacity. Pendant cord control standard; throttle control available. Mechanical load brake never needs adjustment. Compact design results in low headroom advantages. Lug, push trolley and hand-gear trolley suspension.

**Budget Air Hoists.** 1/4, 1/2 and 1 ton. Compact and light in weight. Link and roller chain types. Explosion proof motor cannot burn out. Spark and corrosion resistant link chain type models. Speeds infinitely variable to 75 FPM, depending upon capacity. Pendant cord control. Safety hooks standard. Rigid mount type and push trolley available.

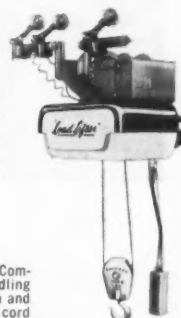
## ELECTRIC HOISTS



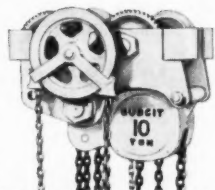
**Load Lifter Series "700" Wire Rope Electric Hoists.** 1/2 to 15 tons. Fast, heavy-duty hoists with two automatic brakes and safe 24-volts at the push-button control. Two-speed models for spotting fragile loads safely. Lug suspension and push, hand-gear and motor-driven trolleys available. Hi-hook model increases length of lift.

**Load Lifter Series "600" Wire Rope Electric Hoists.** 1/2 and 1 ton. Low headroom construction. Tough, light-weight hoists that speed production processes. Separate load and motor brakes act simultaneously. Single and two-speed models with 24-volt push-button stations. Lug or hook suspension; push and motor-driven trolleys available.

**Budget Electric Hoists.** 1/4 to 2 tons. Complete, low-cost hoists for fast load handling service. Come ready to hang up, plug in and operate. Use little electricity. Pendant cord control standard. Separate motor and load brakes act simultaneously. AC, DC and 12-volt battery-operated models. Hook suspension. Trolleys available.



## HAND HOISTS



**Budget Army Type Hoists.** 1/4 to 10 tons. Integral push, hand-gear trolleys are adjustable to fit I-beams in a number of sizes. Low headroom design permits high hook lift. Efficient spur gearing and load brake speed hoisting action. Extensive use of strong aluminum alloys saves weight and reduces effort needed to travel the hoist. Spark and corrosion resistant models available.

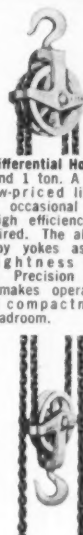


**Budget Chain Blocks.** 1/4 to 10 tons. Light, tough aluminum frame seals in spur-gear mechanism and automatic load brake. A 25-lb. pull on the hand chain lifts a 500-lb. load. Fast acting brake speeds and simplifies lowering. Hook suspension. Trolleys available. Ask about spark and corrosion resistant models.



**Budget Differential Hoists.** 1/4, 1/2 and 1 ton. A durable, low-priced lifting tool for occasional use where high efficiency is not required. The aluminum alloy yokes assure both lightness and strength. Precision machining makes operation easy and compactness saves headroom.

**Tugit — the Lever-Operated Hoist.** 3/4 to 3 tons. A spur-gear, light-weight lifting and pulling tool you can carry around. Has a thousand and one uses. Operates easily at any angle, even in close quarters. A 42-lb. pull on the handle lifts 2 tons. Spark and corrosion resistant models.



**Budget Roller Chain Block.** 1/4 to 2 tons. Spur-gear for highest efficiency. A pull of 45 lbs. on the hand chain lifts 1/2 ton. Light and strong. Mechanism enclosed in sealed housing — operates in grease. Automatic brake holds load safely at any desired point.



**Budget Hi-Cap Trolleys.** 3 to 20 tons. Adjustable push type. Wheels have crowned treads for easier movement, longer wear. Bumpers protect wheels. No lubrication required. Spark and corrosion resistant models.



**Budget Geared-Type Trolleys.** 3 to 20 tons. Adjustable to fit 8" to 24" I-beams. Easy action geared drive wheel and guide are weatherproof aluminum alloy. Hand chain is cadmium plated. Spark and corrosion resistant models.



**Budget Cord Reel.** Keeps hoist conductor cord out of the way. Reels off in any direction. Also useful for portable tools with polyphase motors to 7 1/2 hp; single phase to 1/2 hp.



**Budget Conductor Cord Trolley.** Used in any number to hold hoist or other conductor cord aloft on monorail systems and crane I-beams.



**Budget Gantry "A" Frames.** 1 and 2 tons. For low-cost mobile lifting service. Caster equipped. Shipped knocked down. Easy to assemble with I-beam purchased locally.



## OVERHEAD LOAD HANDLING EQUIPMENT

Products of

**MANNING, MAXWELL & MOORE, INC.**

Shaw-Box Crane & Hoist Division • Muskegon, Michigan

In Canada: Manning, Maxwell & Moore of Canada, Ltd., Galt, Ontario

Circle 119 on Reader Service Card for more information





Photos courtesy of D. S. Kennedy & Co., showing L-B Lift Table installation.

## Double Duty

de-burring done during re-skidding

Southworth Lift Tables\* solved D. S. Kennedy & Co.'s problem of how to jockey flange blanks up and onto a multiple spindle drill press, bore eight holes, then re-skid with a minimum of physical effort and a maximum of speed. What's unusual, however, is that *one doubles as a work table*. The take-off man de-burrs each flange while re-skidding, adjusting the working height when each layer is completed . . . an extra materials handling convenience and an operational economy all in one. For further information on Southworth Lift Tables as aids in cost reduction write to:



\*PATENT PENDING

# SOUTHWORTH LIFT TABLES

a division of SOUTHWORTH MACHINE CO., 306 Warren Ave., Portland, Me.

Circle 160 on Reader Service Card for more information

### ... USEFUL LITERATURE

at a 200,000-ton cement plant located in England are presented in a 12-page bulletin ER-3241-1. Equipment, kiln operation, and clinker cooling are discussed. A special section is on the operation of two 560-ton raw meal blending and storage silos that are equipped with the company's Airmerge quadrant blending system.

Fuller Co.

Circle 330 on Reader Service Card

### Roller Conveyors:

Bulletin 65, 24 pages, illustrates and gives detailed information on Standard roller conveyors, gravity and power models. They are designed to handle cartons, boxes, crates, lumber, shingles, etc.

Standard Conveyor Co.

Circle 331 on Reader Service Card

### Multi-Purpose Fork Lift:

All-around material handling features of the S-10 "Moto-Bug" are the subject of a four-page bulletin. Illustrations show how the one unit can be easily converted from fork lift to drum handler, platform carrier, utility scraper and 10 or 15 cu. ft. capacity hopper carrier. Built-in safety features are explained.

Kwik Mix Co.

Div. of Koehring Co.

Circle 332 on Reader Service Card

### Case History of Savings:

Field Report No. 38-D1-34 describes how an Ohio manufacturer saved \$30,000 a year by moving steel pipe with three straddle carriers. The 4-page report shows how to load, transport, unload, and store the steel pipe.

Clark Equipment Co.

Circle 333 on Reader Service Card

### LP-Gas Booklet:

"This Business of LP-Gas Carburetion" is a booklet written primarily for new installers of LP-Gas carburetion on lift trucks, truck fleets, construction equipment, etc. It explains practical methods whereby LP-Gas carburetor installations are properly sold and installed.

Ensign Carburetor Co.

Circle 334 on Reader Service Card

### Vibratory Feeders:

Here's a 30-page bulletin describing vibratory feeders that make bulk materials flow like water and have a variable control of the rate of flow.

Syntron Co.

Circle 335 on Reader Service Card

### Adjustable Boltless Shelf:

Maximum space economy offered by Flexirack is featured in a four page folder. Quickly erected and easily



moved, it can be adjusted in seconds. The amount of space actually utilized in a typical flexirack installation is determined solely by the amount of space required by the loads. Illustrations show how the shelving is used for pallet storage, die storage, skid and carton storage.

*Hartman Metal Fabricators, Inc.*

Circle 336 on Reader Service Card

#### Learn about Unit Loading:

"Pallet Handling in Narrow Aisles" will give you a lot of information on that subject in its 24 pages. It will tell you how to identify pallet styles, explain the advantages of unit loading, show you how to use air rights.

*The Raymond Corp.*

Circle 337 on Reader Service Card

#### Stationary Battery Data:

Use, design, and construction of the firm's standard line of PlastiCell lead-antimony grid batteries for all stationary battery applications are covered in a 12-page bulletin CP-532. Complete cell data on the entire line from 10 to 1650 ampere hour ratings, curves on discharge characteristics, rack data, accessory details are included.

*C & D Batteries, Inc.*

Circle 338 on Reader Service Card

#### Overhead Conveyor System:

Typical installations and layouts, with complete engineering specifications are in a 12-page catalog on overhead conveyor systems. The company shows how its conveyors meet the demand for modern handling of any type of intermediate load in varied applications.

*Chainveyor Corp.*

Circle 339 on Reader Service Card

#### Chains:

In this 78-page catalog are included descriptions of malleable iron chains and elevator buckets.

*Moline Malleable Iron Co.*

Circle 340 on Reader Service Card

#### Rubber Mounted Cranes:

Complete range of its rubber mounted cranes, from 15 to 45 tons lift capacity, in a four page bulletin. Eleven models of the highly mobile equipment are illustrated. All models are convertible for dragline, clamshell or bucket work.

*Koehring Co.*

Circle 341 on Reader Service Card

#### Coal Feeding and Weighing:

Crushed coal for boilers handled by a system designed for compatibility with existing conveyors and power plant equipment is covered in a 4-page bulletin.

*Bell Automation Corp.*

Circle 342 on Reader Service Card



**PARTS-  
HANDLING  
A  
PROBLEM?**

## SOLVE IT WITH NESTIER BOXES AND BASKETS

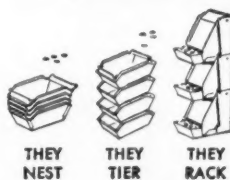


Nestier Boxes and Baskets are designed by experts to save you money everywhere small parts are handled in your plant. In the stockroom Nestiers stack rigidly to eliminate the need for racks. Empty Nestiers save storage space by nesting out of the way. Nestiers carry parts on pallets, conveyors, or moving belts from stockroom to assembly line without time-consuming transfers. At work stations Nestiers provide ample supplies in reach of fingertips. Workers waste no motion bending or stretching after parts. Nestier perforated or expanded metal Baskets cut degreasing time in half. Parts go direct from stamping machines, through degreasers on to your assembly line without a single handling operation. Nestiers are die formed in production quantities assuring uniformity at low cost. Nestier Boxes and Baskets are available in 5 sizes 12" to 36" long. Mail the coupon today for further information.

See us at Booth 2012—Material Handling Show

#### NESTIER CORPORATION

Subsidiary of THE METAL SPECIALTY CO.



Please send me price list and complete specifications on Nestier Boxes and Baskets.

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

Circle 134 on Reader Service Card for more information

# ... USEFUL LITERATURE

## Transfer Conveyors:

Bulletin 375, 8 pages, describes belt conveyors from 9 to 102 feet long that use 18, 24, and 30 inch wide belts.

*Barber-Greene Co.*

Circle 343 on Reader Service Card

## Caster and Wheel Catalog:

Revised, this 32-page Rapistan catalog contains detailed information on construction, sizes, and applications for the units. Specification tables present complete information regarding rated capacity, type of wheel, weight and model number.

*The Rapids-Standard Co. Inc.*

Circle 344 on Reader Service Card

## Pneumatic Conveyor Design:

Here is practical information of how to select, operate, and maintain pneumatic systems for transporting dry bulk materials. Bulletin 1-28, 8 pages, covers positive, negative, and combination systems.

*Sprout, Waldron & Co., Inc.*

Circle 345 on Reader Service Card

## Put Waste Cartons to Use:

A Compto-Pak bulletin tells you how to convert waste corrugated or cardboard material into sheets that can be re-used in your own packaging operations. Compto-Pak Cutter and Crimper converts them into crimped sheets that are ideal for inner and outer wrap, car-

ton liners, etc. The material can be formed around odd-shaped products for safe, cheap cushioning. It not only cuts packaging costs but does away with the nuisance of waste disposal.

*ComptoPak Div.,*

*Comptometer Corp.*

Circle 346 on Reader Service Card

## Adjustable Storage Rack:

Photographs taken in many plants where its racks are in use and cover a wide range of applications are used. Space saving advantages are pointed out. Racks are custom built for any storage requirement. They can be used in single, double, or multiple sections. They can also be galvanized for outside use.

*Palmer-Shile Co.*

Circle 347 on Reader Service Card

## Industrial Cellular Materials:

An 8-page pamphlet illustrates and describes the properties and applications of industrial cellular rubber and plastics. Covered are sponge rubber, neoprene, silicone sponge, cell-tite, and cellular vinyl. The materials are available in sheet stock, die cut shapes, pad stock, strips, tubing, cord and molded forms for applications in sealing, vibration damping, shock absorption, insulation and flotation.

*B. F. Goodrich Co.*

Circle 348 on Reader Service Card

## Heavy Duty Crane:

The 8-ton Model 38-A-1 crane is engineered for extra power and is designed for speed and stamina. Simplicity, balance, performance and durability are its features. Catalog 1159 gives full details. Clutch assembly, ball bearing turntable, cable and swing drums, the crawler car body, and the power train are illustrated.

*Little Giant Crane & Shovel, Inc.*

Circle 349 on Reader Service Card

## Bulk Material Handling Method:

Catalog No. 6 shows a complete system to solve your bulk material handling problems. Full information, complete with pictures, is given on the Tote System Operation. Specifications and special applications are included.

*Tote System, Inc.*

Circle 350 on Reader Service Card

## Automatic Pallet Loader:

Here's a 16-page bulletin that shows all the operating steps in a pallet loader. Pallet loading patterns are covered, and dimensions of the unit are shown in templates.

*Lamson Corp.*

Circle 351 on Reader Service Card

## Truck-Activated Dock Ramp:

The Dockbridge Loading Ramp is the subject of a 4-page bulletin just released. Catalog A-101 tells how this new ramp works, and includes pictures showing the operation in detail. As the

# LP-GAS POWER

## BEAM

Carburetion  
Gives You The  
MOST



Beam is always "out front" with the latest developments in LP-Gas Carburetion equipment. Note this "compact" installation on a four-cylinder Continental Engine.

**BEAM** new Model 60 Regulator — smallest, most efficient yet developed.

**BEAM** Filterlock — smallest, most efficient combination fuel-filter and solenoid valve.

**BEAM** Microvac — UL Approved precision Safety Switch insures fuel lockoff.

**BEAM** Water Runner Installation System — saves space, time, and money. Makes for most compact LP-Gas installation in the Industry.

WRITE FOR LITERATURE!

Beam makes the  
COMPLETE LINE —  
the ADVANCED LINE!



**BEAM PRODUCTS MFG. CO.**

3040 Rosslyn Street • Los Angeles 65, Calif.  
CHapman 5-5791

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truck backs against push arms the ramp raises 16", and pauses there until the truck comes to a stop. Then it lowers gently onto the truck bed, at any height from 16" above dock level to 10" below. It has 20,000 lb axle load in any direction. Flush for cross-traffic when not in use. You can easily mount it in your dock, or on legs out front.

*American Dockbridge, Inc.*

Circle 352 on Reader Service Card

### Industrial Caster Folder:

Detailed information, illustrations and specifications on 24 different series of truck casters are included in folder No. 10158. Both swivel-plate and rigid-plate casters are included. They range in size from light duty casters with a three-inch wheel and 75-pound load capacity to super-heavy-duty casters with a 10-inch wheel and 15,000 pound load capacity.

*Faultless Caster Corp.*

Circle 353 on Reader Service Card

### Floor Truck Guide:

Information on 52 floor trucks for loads up to 5000 pounds are included in Catalog 29-1. Platform and bin types, wagons, drag-line carts, freight carts, dollies, semi-live skids or shelf trucks are shown. You may see a standard truck that's right for your needs, or the company offers to build one that will solve your particular material handling problem.

*Lewis-Shepard*

Circle 354 on Reader Service Card

### Coil Chain Electric Hoist

Light weight is one of the main features of the new Quick-Lift coil chain electric hoist. A 12-page folder shows in detail features of this push-button control operated hoist. It was designed to bring heavy-duty hoist efficiency and durability to the portable hoist field, while keeping weight to a minimum.

*Coffing Hoist*

*Division of Duff-Norton Co.*

Circle 355 on Reader Service Card

### Framing Material:

No welding, drilling or special skills are needed to assemble the slotted angle steel. Literature advises that first you plan, then measure, cut, and bolt. The manufacturer says it is a strong and economical material for building unlimited varieties of useful structures and equipment.

*Acme Steel Co.*

Circle 356 on Reader Service Card

### Merchandising at Point of Sale:

"How to Select Display Stands" tells you how to give products more impact at the point of sale. Pocket size, 36 pages. It shows how display stands can introduce a new product, tie in with national advertising or sales programs, increase the unit of sale, etc. Includes

photos of more than 30 corrugated display stands, both table-top and floor-type.

*Hinde & Dauch*

Circle 357 on Reader Service Card

### Mechanical Handling Tongs:

Tongs for use in areas where space is too small for lift truck operation are known as Cranehands. They operate from mill or s-hooks, depending on capacity. An automatic lock opens upon contact with the load without the aid of electric power or other mechanical devices. Capacities range from 1000 pounds up to 50,000 pounds. Maximum opening is 50 inches. They are designed for large material handling, such as

bars, billets, ingots, pipe, coils, and structural steel. Models and styles are illustrated.

*American Forge & Mfg. Co.*

Circle 358 on Reader Service Card

### Industrial Power Sweeper:

Task Master "42", has a sweeping swath of 42" with the main broom, and 70" with side brooms. The turning radius is 5'6". Hopper capacity is 13.5 cu. ft. ½ ton. Center cab steering, 10 sec. hydraulic dumping, automotive-type controls, and a fabricated frame and bumper are some of its designs. Many optional accessories are available.

*Patch & Kase Corp.*

Circle 359 on Reader Service Card




**IN SIZES TO HANDLE EVERY PRODUCT**

16 x 10 x 5"  
18 x 12 x 6"  
18 x 12 x 8"  
22 x 14 x 8"  
22 x 17 x 10"  
27 x 16 x 11"  
39 x 19 x 14"  
34 x 24 x 19"




16 x 10 x 5"  
  
  
  
  
  
  
  
  
34 x 24 x 19"

COME SEE US AT  
MATERIAL HANDLING  
INSTITUTE'S  
EXPOSITION  
CLEVELAND  
AUDITORIUM  
JUNE 9-12  
1959

**BOOTHS**  
218 and 225

**WITH ACCESSORIES FOR GREATEST VERSATILITY**




**PAN COVERS**

- Molded of Fiberglass Reinforced Polyester in colors to match pans • Snug fit — keeps out dust and dirt • "Contour offset" for safe, high stacking of covered pans • Nest when not in use • Use as trays if desired • Popular sizes — fit the 22x14x8" and 27x16x11" Stack-n-Nest pans.

**DOLLIES**

- Molded of Fiberglass Reinforced Polyester in colors to match pans • Four heavy-duty, easy-rolling swivel casters • "Contour offset" for safe, secure stacking of pans • Quick, easy multiple handling and movement — loaded or empty • Rugged construction for big pay loads • Popular sizes — fit the 22x14x8" and 27x16x11" Stack-n-Nest pans.

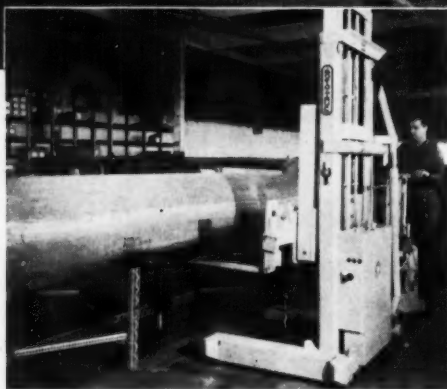
G. B.  COMPANY

606 Montgomery St., Watertown, Wisconsin

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STACK-N-NEST PANS PATENTED  
2,823,828      2,823,829

# Material Handling with



A NARROW PROFILE and a long reach makes this Moto-Truc a natural for long loads in narrow aisles.

HITCHIN' A LIFT with a straddle type Moto-Truc; designed for operation from a position on the forks.





# MOTO-TRUC

... the trucks that cost less  
to own and operate!

• Moto-Trucs will increase your handling profits three ways: First, they cost less to buy than competitive models and thus, you save on initial investment. Second, Moto-Trucs cost less to operate and maintain because their simple, rugged construction cuts repair bills and gives your more profitable time on the job. And, third, you can count on more effective use of available warehouse space because of Moto-Truc's small size and maneuverability. Result: Moto-Trucs deliver greater profits at far less cost.



Check into the profit potential that Moto-Truc can deliver. There are walkie and small rider models in a wide variety of types and sizes to meet every warehousing need. Let your local Moto-Truc representative help you pick the *best* model for your job.

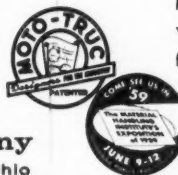


Get More Facts on the complete line of Moto-Truc models: Ask for catalog 56W on walkies or 56R on small riding models.

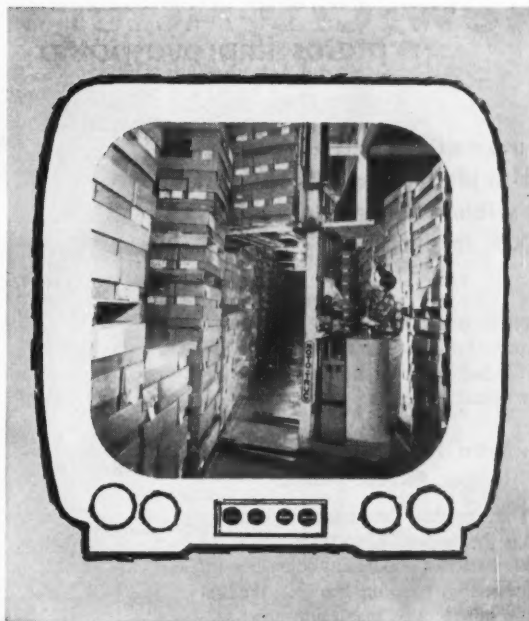
Largest exclusive manufacturers of  
walkie and small-rider trucks.

**The MOTO-TRUC Company**  
1955 E. 59th Street • Cleveland 3, Ohio

JUNE, 1959



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## Visit us at the MATERIAL HANDLING SHOW

See a "LIVE" Telecast of  
Moto-Trucs Operating at  
American Greeting Corp.

Watch Moto-Trucs on the job . . . working under actual operating conditions. You can see an actual demonstration of handling operations at the highly efficient warehouse of American Greeting Corporation, one of the nation's largest greeting card manufacturers.

See it "live" on closed circuit television from the comfort of an easy chair in Moto-Truc's booth at the Material Handling Show.

## PLUS— Latest Handling Ideas

Inspect the latest in walkie and small rider trucks in Moto-Truc's booth at the Show. Designed to cut handling costs, save space and maintenance easier, these new trucks are built to give you peak performance and dependability.

You'll be sure to find a host of new handling ideas from Moto-Truc . . . leader in small truck progress.

Look for Booth #120 - 130 & 131  
Material Handling Institute's Exposition  
Cleveland Auditorium • June 9-12, 1959

# New C&D AccuPak<sup>\*</sup>

plates improve battery performance; increase life!



**Automatic nuclear control holds plate uniformity to finest possible tolerance; provides 100% inspection!**

Electric truck battery users will find three major advantages in C & D *Slyver-Clad*<sup>®</sup> batteries containing the exclusive, new *AccuPak*<sup>\*</sup> plates:

## 1. Extra long life—because of longer, thicker plates.

The true final determinant of battery life is the amount of metal in the grids. C&D batteries outlast any other battery because they have the heaviest, thickest plates made. The maximum cross-sectional area grid is cast by a special process that eliminates flaws, shrinkage, cracks, and dross inclusions.

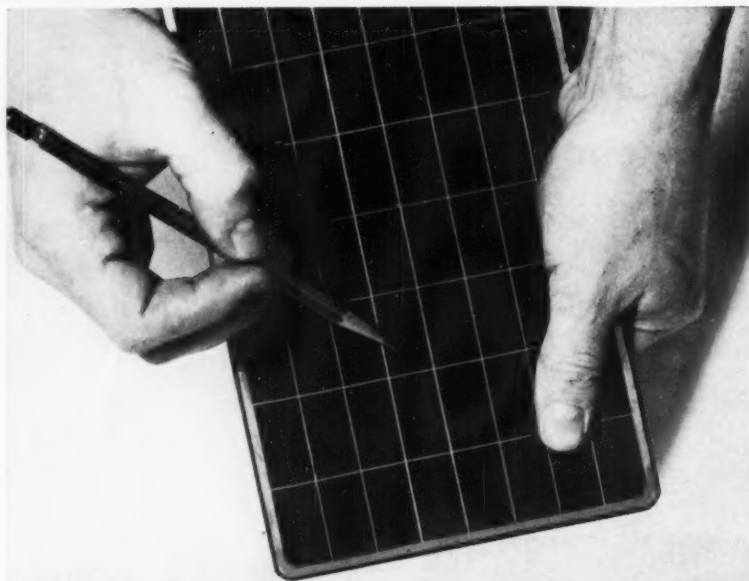
## 2. Extremely uniform *AccuPak* plates; no low cells; high capacity to end of life—due to *AccuRay* control of pasting.

C&D uses *AccuRay*<sup>\*\*</sup> to automatically control the amount of active materials going into the grid structures of both positive and negative plates! C&D is the only industrial battery manufacturer using *AccuRay* control.

The use of *AccuRay* to control the pasting operation means that plates have maximum uniformity of weight, density, and thickness of active material. *AccuRay* controls uniformity to within



Exclusive *AccuRay* control—another C & D first—once again sets the pace for the battery industry. *AccuRay* automatically controls weights of all battery plates to a point of uniformity heretofore impractical.



Precise weights and amounts of lead oxides must fill the especially cast battery plate grids to assure the maximum capacity and electrical characteristics.

$\pm \frac{1}{2}\%$  and automatically subjects every plate to a 100% inspection.

## 3. No life-shortening nor capacity drop-off due to sediment build-up—because of *Slyver-Clad*<sup>®</sup> insulation and retention.

The longer, heavier, more uniform plates are then wrapped with the time-proven C&D *Slyver-Clad* five-fold insulation. This consists of a layer of extremely fine parallel glass filaments or sliver, a vertical glass wrapping, a horizontal glass wrapping, a perforated plas-

tic retainer, and finally a microporous rubber separator.

The combination of these five layers of retentive materials virtually eliminates shedding, or loss of active material, with its accompanying life-shortening build-up of sediment in the bottom of the container. Thus, a huge bottom sediment space is not needed. C&D fills this space in standard containers with the heaviest, thickest plates available in any industrial battery.

For full information on C&D *Slyver-Clad* batteries featuring *AccuPak*, write for Bulletin IT-530.



Since 1906

**C & D BATTERIES, INC.**

*of Conshohocken, Pa. Attica, Ind.*

Sales and Service Offices in Principal Cities from Coast to Coast

Manufacturers of *Slyver-Clad*<sup>®</sup> Industrial Batteries • **PLASTICELL**<sup>®</sup> and **PLASTICAM**<sup>®</sup> Batteries for Communications, Control and Auxiliary Power • Producers of *Autolag*<sup>®</sup> Silicon Chargers

<sup>\*</sup>Trademark, C & D Batteries, Inc.

<sup>\*\*</sup>Trademark, Industrial Nucleonics Corp., Columbus, Ohio

## HANDLING IN THE BIG 3

**In this issue**, you'll see some of the most spectacular material handling systems in the world. You'll read how the automotive business looks at material handling engineering from two standpoints—management and engineering.

You'll also see in this month's articles how we're living up to our new name, MATERIAL HANDLING ENGINEERING.

It's plain that the material handling man is at last achieving the stature he has long deserved. He is being called in to apply his engineering specialty at all company levels. This is why we have emphasized "engineering" articles for the past nine months. We recognized the material handling man's increasing need for more engineering information. (And we'll have a good many more engineering articles in the future.)

Why devote a whole issue to one industry? Well, the material handling engineers who help make cars have been among the foremost in designing new handling techniques and equipment. They've had to keep ahead. The pressures of consumer demand have kept them hopping. And, helped by their research and manpower resources, they have led progress, not only in production handling but also in storage, warehousing, packaging, and shipping.

This progress is especially noteworthy for two reasons. First, it happened with great speed. Second, it permeated the companies, including their top managements.

### **Here's the time table:**

At Chrysler—Staff Material Handling Engineering Department started just two years ago.

At General Motors—Material Handling Committee set up in 1947.

At Ford—Central staff of eight advised company on material handling in 1945. Two years later, in big expansion, manager of material handling became responsible not only for research and development but also for providing trained handling engineers to division material handling departments.

### **Here are their management responsibilities:**

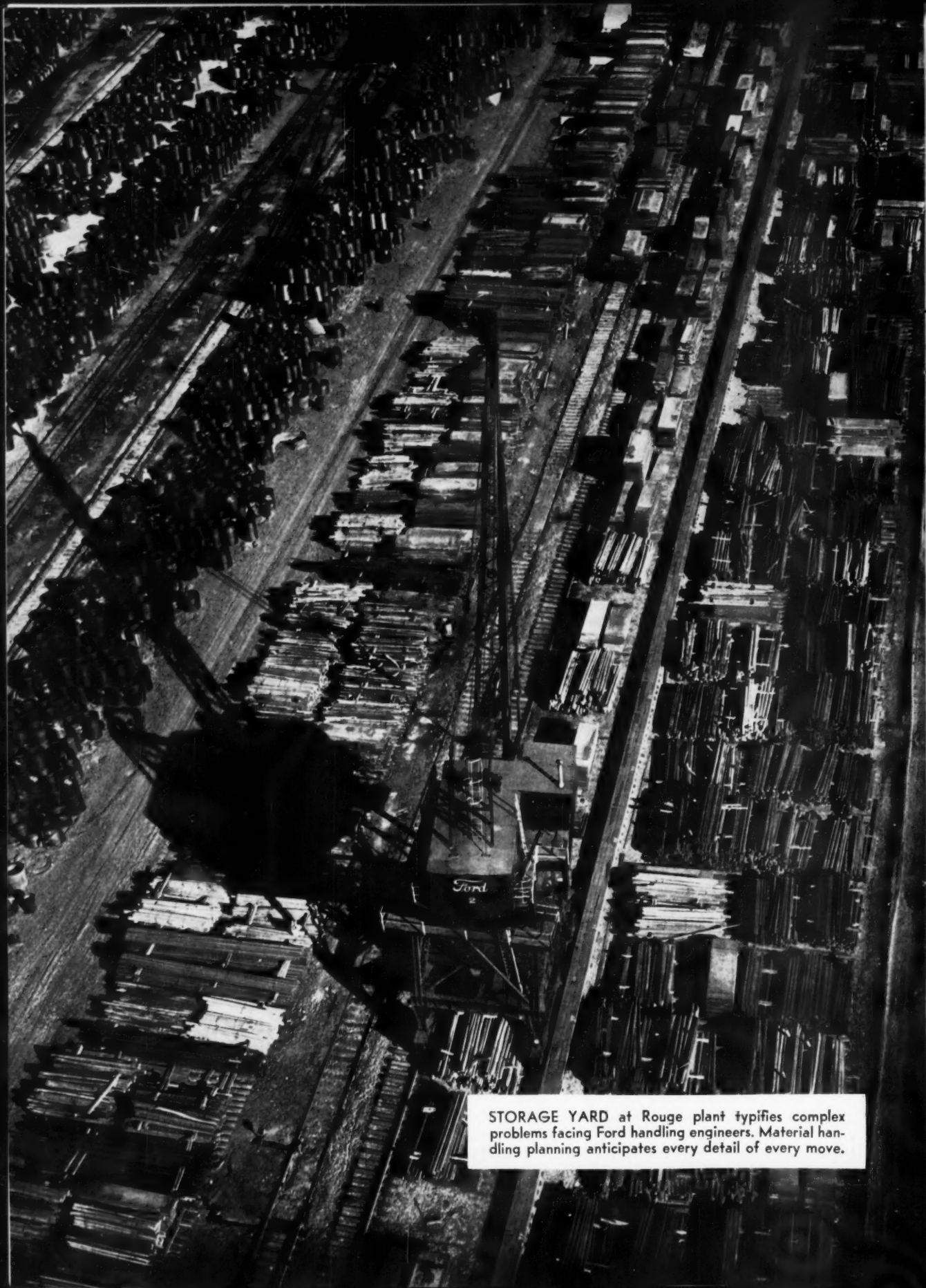
At Chrysler—Head of Staff Material Handling Engineering Department reports to Manufacturing Engineering Office.

At General Motors—Corporate advisory group, Material Handling Committee, comprises at least one representative from staff of each division.

At Ford—Manager of Material Handling Engineering reports to Director of Manufacturing and Vice President in Charge of Manufacturing.

Of course, the automotive companies aren't the only ones that have given such importance to their material handling engineering. They aren't the only ones which have made big contributions to the science of handling in general. But, with the numerous innovations of the car firms, it's easy to see why so many other companies have already followed their patterns in material handling. More are sure to want to adopt their ideas after reading this month's features.

*Ed Leighton* Executive Editor



STORAGE YARD at Rouge plant typifies complex problems facing Ford handling engineers. Material handling planning anticipates every detail of every move.





Ford Motor Company considers material handling and related activities vital functions worthy of top management attention, because . . .

## You Can't Run a Plant by the Seat of Your Pants

**S**OME time ago, Ford decided that good equipment alone is not enough to assure efficient handling.

Obviously, machines cut physical labor. But for full benefits of mechanized handling you must do a thorough job of planning, organizing and training.

Follow a production part's normal trip through the plant. It is unloaded at the receiving dock, accounted for, moved to a warehouse and stored. Then, it is probably accounted for again, moved again, line fed, and finally used.

All these steps used to be considered independent actions. Ford engineers used to look for ways to save at each separate step. Today, a carefully planned system links the independent actions to increase efficiency of the whole operation.

### They Call It Integrated Material Handling

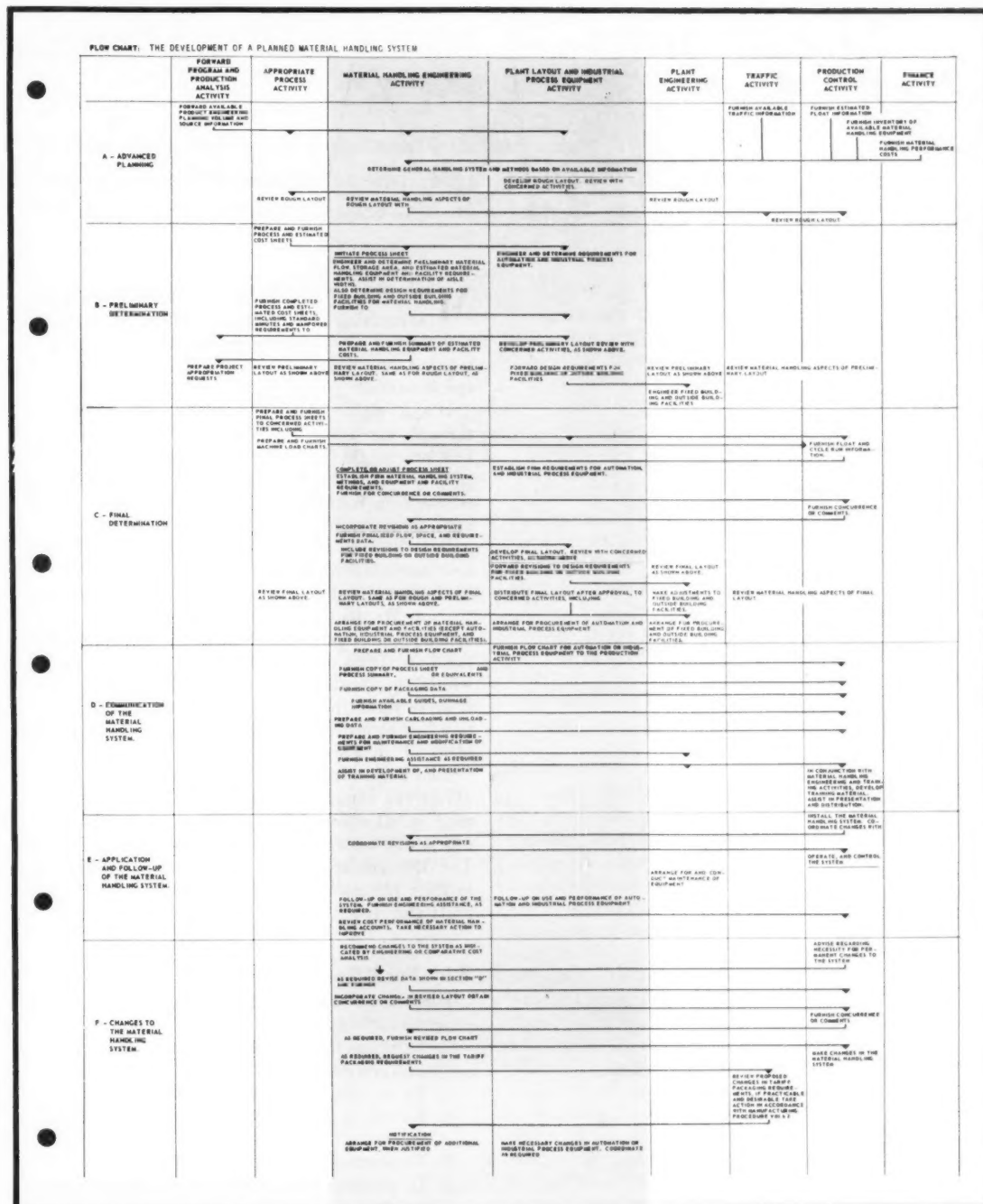
Webster's dictionary says that integrate means, "to form into one whole, or to unite." In terms of Ford handling operations, it means that the activities of machines and people are synchronized so that no single element ever functions without regard for the whole. This does not mean replacing people with machines. In fact, Ford has sometimes found it better to retain manual handling methods.

To be successful, integrated handling requires one ingredient above all others—management support. At Ford, it has been provided in full measure.

The company's organization chart shows that material handling engineering is an important manufacturing function. It is not tacked on as a service or maintenance activity. In its central office building in Dearborn, Ford has established a material handling engineering department as part of the manufacturing engineering office. It is headed by a Manager of Material Handling Engineering who reports to the Director of Manufacturing Engineering who reports to the Vice President in charge of manufacturing.

That department is the center of a closely coordinated national network of material handling engineering teams. The effectiveness with which that network operates is one of the big reasons for Ford's success with integrated handling. It is insurance against seat-of-the-pants operations.





FLOW CHART shows coordinated functions of engineering groups in the development of a planned material handling system. This chart was taken from Ford's

material handling handbook which contains recommended procedures for virtually every activity concerning material handling engineers and equipment.



# Standards:

**M**ATERIAL HANDLING standards at Ford cover everything from casters to highway trucks. New equipment, new systems, even new structures are selected, purchased and applied according to rigid specifications.

It's a tight program. Anyone who has fought through barricades built by some government specifications might ask why Ford has a comprehensive standards program? Does standardization hamper engineering initiative? Has Ford shut itself off from new developments?

J. A. Brewer, material handling engineer for Ford's new assembly plant in Lorain, Ohio, doesn't think that standards stifle initiative. He told MHE's editors, "... We like standardization and don't want to deviate from standards set up by Central Staff, or the Ford Division staff. After all, if we don't agree with a specification, we can recommend changes and, if we're right, the changes will be made. Standardization has helped to ferret out and improve on the best ideas of all Ford material handling engineers."

Two basic types of standards govern material handling: (a) company-wide, for equipment that may be used in all plants; (b) division, or plant, covering equipment for unique jobs. The standards are guides. The divisions are not compelled to use a standard if, in their judgment, there is a better way of doing the particular job.

## Why Ford Has Standards

Ford gives five reasons for its standardization program:

1. To promote uniform performance of equipment and processes.
2. To provide guides for building new structures.
3. To reduce inventory variety, volume and storage space.
4. To promote safety.
5. To promote availability of equipment and materials.

Standards help Ford to measure present and planned installations. Furthermore, standards are time-savers. They slash the time required to inquire about equip-



# Stumbling Blocks or Building Blocks?

Have you ever considered a material handling and packaging standardization program? Ford has one of the most extensive and successful in industry.

ment and to negotiate purchase orders and design approvals.

## Initiative Hampered?

Ford's standardization program has built-in features which not only allow, but encourage new ideas.

First, each plant material handling engineer is responsible for his own operations. When he needs new equipment, or a new handling system, he will engineer it (while trying to stick to standards). If it is new he will submit his design to the central staff for company-wide screening. It is reviewed by the staff and all divisions. After the proposed design has been accepted, by Central Staff and by the divisions involved, it becomes a standard.

Central Staff never crams a standard down a divisions throat. To insure against that, meetings are held monthly (or more often if needed) and controversial items are discussed. If one division disagrees about a particular item, that item will be discussed until the unacceptable features are changed and approved. If this cannot be done, the item is placed on the agenda of the Manufacturing Standards Committee to be resolved.

To help engineers take full advantage of standardization, the Central staff material handling engineering department developed a material handling handbook. It recommends proved methods, defines policy and reflects results of testing and research.

## Cut Off From New Developments?

Ford has made sure that standardization does not lead to inflexibility. It has made its Standards available to outside suppliers. From them, suppliers can find out, not only when products fall short, but also when they beat specifications.

A supplier may submit his new product to Ford through any material handling engineering activity. The central staff maintains a development and research building for evaluation of new products.

For easy use, all Ford standards are coded. Each is identified by two letters followed by numbers. For example, the specifications for an extension post used on metal racks are in Standard ZE-103. That can

be broken down into these elements:

*Z—Classification . . .* identifies all material handling standards.

*E—Unit identification . . .* puts this item in the metal container category.

*103—Item number . . .* pinpoints this as a rack extension post.

Sometimes, the standard number might cover more than one item, or it might permit specific optional features. For this, a further breakdown is needed. For example, the rack extensions covered by ZE-103 come in six different lengths from A (10 inches) to H (6 inches). Thus, 10-inch metal rack extension posts are covered by standard ZE 103A.

This is a procurement specification. If we were looking for a methods standard we would add the letter X to the number. For example, the procurement standard for safety equipment on Ford operated trucks is ZC-5. The methods standard which tells how to apply the safety equipment is ZC-5X.

## Packaging and Shipping Standards

Ford believes that the same planning should be given to packaging specifications and their effect on handling and shipping as is given to parts manufacturing. A good part of the material handling engineer's attention is devoted to that subject.

Ford material handling engineers do not design packages or packaging methods for suppliers. They only furnish guides to the suppliers' packaging and shipping engineers. The packaging guides about peculiar capacities and limitations of handling equipment and methods. They call attention to problems relating to transportation methods. And they tell the suppliers about necessary forms and information they will be expected to furnish.

Working from a universal packaging and shipping guide, a supplier will design his own package and method of transportation. He sends this information to Ford on a Production Parts Packaging and Shipping form. Once that has been accepted, his standards are set. He must comply with the specifications he has helped set for himself. Any deviation will require approval of Ford material handling engineers.

Assembling transmissions requires tight production control. The secret of keeping cases and components matched is . . .

## Material Handling—Ford's Top Assembly Worker

**M**ANUFACTURING transmission components and assembling them at high speeds requires a coordinated flow of parts. The Ford Automatic Transmission Plant in Sharonville, Ohio, has developed material handling practices that: (1) Help keep the parts scrupulously clean. (2) Keep them undamaged. (3) Ensure that assembly stations always have enough parts on hand. (4) Provide efficient handling of parts in assembly stations and keep them within easy reach of the assembler. (5) Organize the flow of components so that final assembly into the transmission case is accurate and orderly.

The key to this handling system is a network of overhead conveyors. The conveyors carry 30 kinds of racks, each designed for handling a particular part. Customized handling of parts is also done by 60 different kinds of wire baskets.

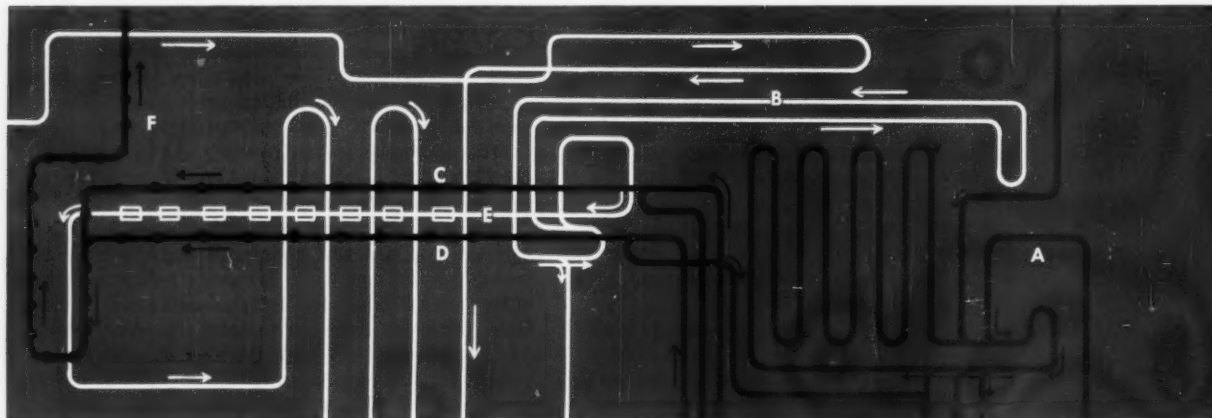
### Handling Component Parts

The first handling operation is moving parts from machining to sub-assembly stations. The parts are

handled in wire baskets carried by an overhead conveyor. "These custom-made baskets keep the parts in order and make it easy for the workers to load and unload," says A. P. Fosdick, supervisor of methods engineering. "And the baskets adapt well to Ford's policy of many washings to keep the parts extra clean."

Each sub-assembly is a material handling installation designed for fast assembling. A good example is the needle-bearing assembly. Trays of pinions come to the station on three-tier racks carried by overhead conveyor. The trays are put on a roller conveyor that feeds into the bearing assembly machine. Multiple skewers lift out the pinions and drop them into the machine, where needle bearings and other parts are automatically inserted. The completed assembly drops into a basket.

Another example of handling at the work station: the main control valve body assembly is done in a pressurized room that keeps dust off the parts. Valve bodies are clamped in fixtures that are attached to an indexing conveyor line. Each assembler along the



## Where Does the MH Engineer Fit In?

At Ford's Sharonville Transmission Plant the assembly operations and the handling operations work closely. So do the engineers responsible for each. In the methods engineering department the material handling engineer is responsible for (1) receiving and shipping procedures; (2) movement of powered floor equipment; (3) all containers, racks, bins; (4) packaging of material received from vendors.

Also in the methods engineering department is a plant industrial engineer. He is responsible for between-operations handling, including automated equipment. An assembly process engineer is responsible for all manufacturing equipment used in assembly.

The interworking of these specialists has produced Ford's complex handling and assembly system.

line has a basket of parts. As the fixture stops in front of the man, he assembles his parts; then the conveyor takes the fixture to the next man. At an inspection station on the end of the line the assemblies are placed on the conveyor-mounted racks that will eventually take them to final assembly.

At many stations the parts waiting to be assembled are stored in their special wire baskets on sections of roller conveyor. This permits easy movement of the parts at work level. Empty baskets are sent to these departments on tractor-trailer trains. The trailers have roller conveyor beds level with the storage sections. The driver merely stops the train even with the department's conveyor and shoves a stack of empties off.

Completed assemblies travel the basket-overhead conveyor route to scheduling sections for temporary storage. This is done on various kinds of racks that fit the part's design. For example, brake bands are stored in "book" racks. These consist of layers of

*(Continued on page 124)*

**FLOW DIAGRAM** shows part of the intricate network of overhead conveyors that are the heart of Ford's transmission assembly. Transmission cases are moved from storage area (A). Racks of parts are conveyed from storage area (B). The cases move along assembly lines (C) and (D). The two-faced racks move on the middle conveyor (E). The completed transmissions are collected on conveyor (F) and taken to testing.



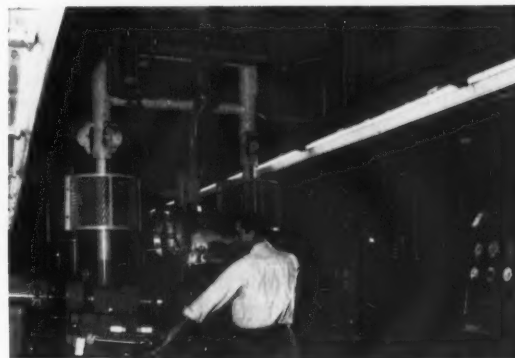
**RACKS**, specially designed to carry shafts, are conveyed from the lathes. The shafts disengage easily.



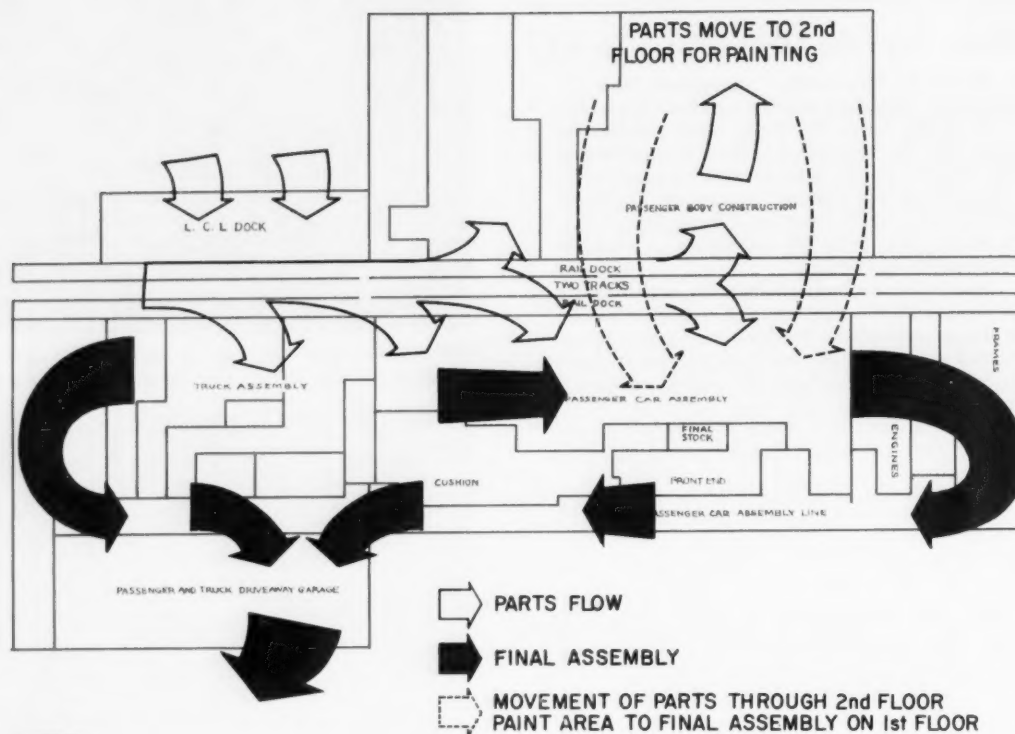
**CONVEYOR** line carries valve bodies to a drilling machine. Notice how racks make parts easy to reach.



**TRANSFER** machine has five sections, 221 stations. Machining on transmission case is done automatically.



**CARRIER** holds assembled transmissions, is moved on a conveyor. Elevator lowers unit into a test stand.



The way you receive materials can mean success or failure of your entire handling system. That's why engineers at the Lorain Assembly plant . . .

## Plan to Unload Cars Before They're

**A**N INTEGRATED system has to start right to be right. The state in which material comes into the plant affects every production and material handling activity.

Incoming parts may be piled, stacked, nested or dunnaged separately in vehicles. This controls the method of unloading. How they are unloaded influences warehousing, which, in turn, affects line feed operations.

Because of these overlapping influences, Ford has devoted much attention to its receiving and unloading activities. In fact, to be sure that every system starts out right, it carries its planning all the way back to the suppliers' plant.

One of the finest examples of integrated receiving and unloading is found at the Ford Division's Lorain Assembly plant. It receives in excess of 2,000,000 pounds of material daily for use in producing about 1000 passenger cars and trucks a day.

Because 75% of all materials come in by rail, the most important material handling facility in the plant is the railroad unloading dock. It was designed for efficient use of mechanical handling equipment—fork trucks for unloading cars, hoists for transferring materials onto in-plant racks, and tractor-trailer trains for transporting loads to storage or assembly lines.

The dock is 1710 feet long and 90 feet wide. A double track with a 30-foot dock on each side splits the plant in two. Three hydraulic bridges (track elevators) speed tow-train travel from one side of the track to the other.

Two five-ton floor operated bridge cranes, one at each end of the dock, unload automobile frames from open gondola cars. Eight two-ton bridge hoists transfer material from railroad car racks to in-plant racks. An important part of Ford's car unloading procedures is planning for the proper placement of cars near the areas where materials will be used.





**OVERHEAD CRANE** and special engine attachment are used to transfer five engines from shipping rack (heavy gauge with hold-down devices) to in-plant rack.

## Loaded

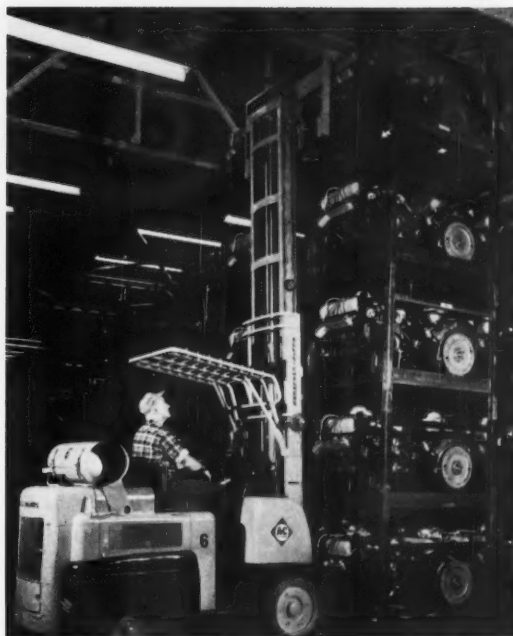
The material handling engineer at Ford Division decides what type of railroad car will be used for products received by all the plants of his division. Not only that, he also lays out the loading pattern. And, of course, he helps suppliers develop standard containers and shipping units. Why? So that he can plan his unloading and in-plant handling methods.

He has four types of cars to choose from:

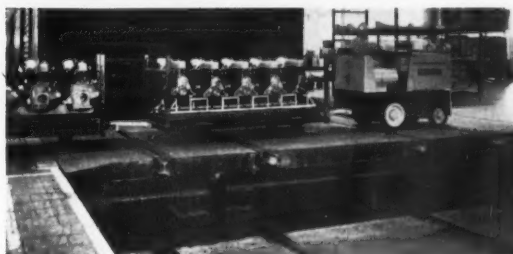
**Equipped Cars** have special racks or fixed position dunnage for transporting specific parts one-way from supplier to assembly plant. They are used primarily for frames, engines, axles and transmissions.

**Dunnage-free cars** are equipped with wall or floor bracing arrangements using gates, platforms, or bars. Side walls have metal rails which permit installation of adjustable bracing devices. Ford has found that the DF cars are easy to load and unload and uses them primarily for decklids, fenders, roof panels, cowl

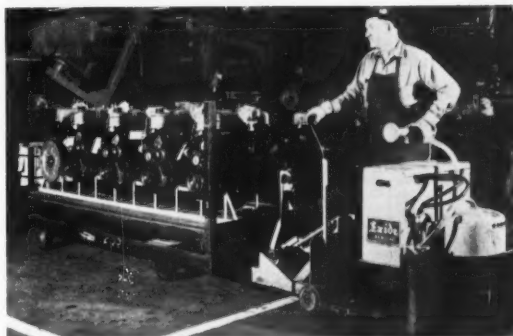
(Continued on page 128)



**FORK TRUCK** lifts rack-loads of engines into storage. As much as possible, parts are stored in an area close to where they will be used on assembly line.



**TRACTOR-TRAILER TRAINS** are used for longer hauls. Because of the railroad tracks through the center of the plant, three hydraulic track elevators were installed to speed cross-traffic. Each has a 60,000 lb. capacity.



**SHORT HAUL TRACTORS** position loads of components along assembly lines. Here, six-cylinder engines will be transferred by air hoist to the engine "dress-up" line where transmissions, fuel pumps and any special components to suit individual retail orders are added.



They custom-build cars on a mass production basis at Ford's Lorain Assembly plant. Precise control and coordination has resulted in . . .

## Smooth Handling of a 776,355,840

**I**F FORD wanted to, it could run the Lorain production line for over 5,000 years and not build two cars exactly alike.

The plant produces 20 different Ford models in solid colors and nine in two-tone combinations. It provides 15 different engine and transmission combinations. There are two types of heaters and radios, power seats, power windows and a multitude of other optional features. An almost unbelievable total of 776,355,840 different Ford combinations.

Working 40 hours per week, two shifts a day, at an output of 36 units an hour, they could build 149,760 cars a year. At that rate, it would take 5,184 years to hit every combination.

These are not just idle statistics presented to amaze MHE readers. They are the facts of everyday life to material handling engineers at Ford. Every car is built to conform to retail order specifications. Seldom are two identical units on the assembly line at the same time.

It presents a fantastically complex material handling problem. Thousands of components must be delivered to precise spots on the assembly line with perfect timing.

One reason they never miss is a conveyor system which is certainly one of the most modern anywhere. It was fabricated and installed by Anchor Steel & Conveyor Co.

As in all Ford assembly plants, the body-skid method is used to move bodies between work stations and processes. The body shell is bolted to two skids at the end of the body framing area. They remain with the body until the body line meets the chassis

line for final assembly.

An innovation in the Lorain conveyor system is a roller flight conveyor which uses only one strand of chain instead of the two strands seen in previously built plants. Only one body skid receives the conveyor force while the other rides on a set of gravity rollers.

The single strand conveyor uses roller chain with high side bars. The chain is inverted, however, so that the driven skid rests on the chain rollers and the high side bar rides on the gravity rolls beneath the chain. Thus, the body can be stopped while the chain free-wheels under the skid. This eliminates the need to start and stop the entire conveyor line when individual bodies are stopped for any purpose.

Conveyors on the body trim line are a new design too. In earlier plants, Ford uses two-strand systems with a four-inch channel slat for every six inches of chain. With the line moving, workers stand on the slats and travel along with the bodies. In the Lorain plant, the work platform is now stationary. Each strand of the new trim conveyor is of the high side bar type with skids supported on the side bars. Chain rollers ride in channel tracks.

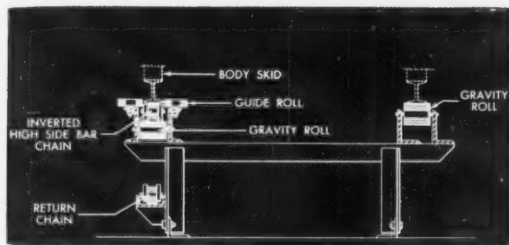
The plant has 38 air-operated transfer tables which move bodies from one conveyor to another. They use a single six-inch air cylinder to actuate toggle arms at four points for elevating and lowering.

All painting operations are on the second floor away from dust, chips and filings. In two of its other

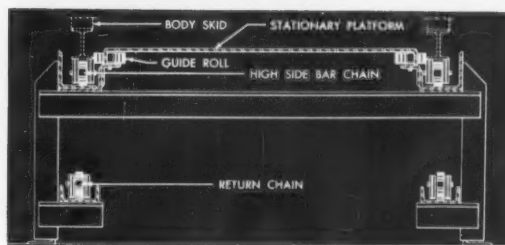
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**ROLLER FLIGHT CONVEYORS** carry car assemblies on body skids throughout the Ford Lorain plant. Only one of the two skids on each body receives conveying force. The other rides on non-powered rollers.



**STATIONARY WORK PLATFORM** is provided for workers on the body trim line by conveyor with two-strand chain. It is lighter than moving slat type formerly used and reduces power requirements by one-third.

## Model-Mix

plants, Ford uses the second floor for painting. But in both cases, cars travel to and from the paint shop on gradually sloped conveyors. This uses valuable space and makes necessary large floor openings (which permit passage of dust).

### Elevate for Painting

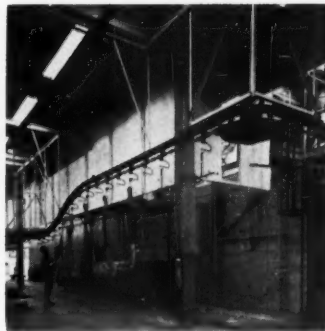
At Lorain, Ford uses elevator-lowerator systems to transport bodies between floors. High acceleration clutches on the devices allow high speeds to the extreme ends of travel. Average speed is 300 fpm and total cycle time in one direction is eight seconds for the 26 feet between floors. In all, there are four elevator-lowerator systems in the plant, three for passenger cars, and one for trucks.



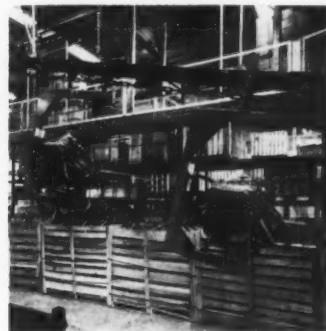
**CAR-BODY ELEVATOR** takes bodies to second floor for painting. A similar unit, called a Lowerator, brings painted bodies back to first floor for final assembly. Cycle time in one direction (26 feet) is eight seconds.



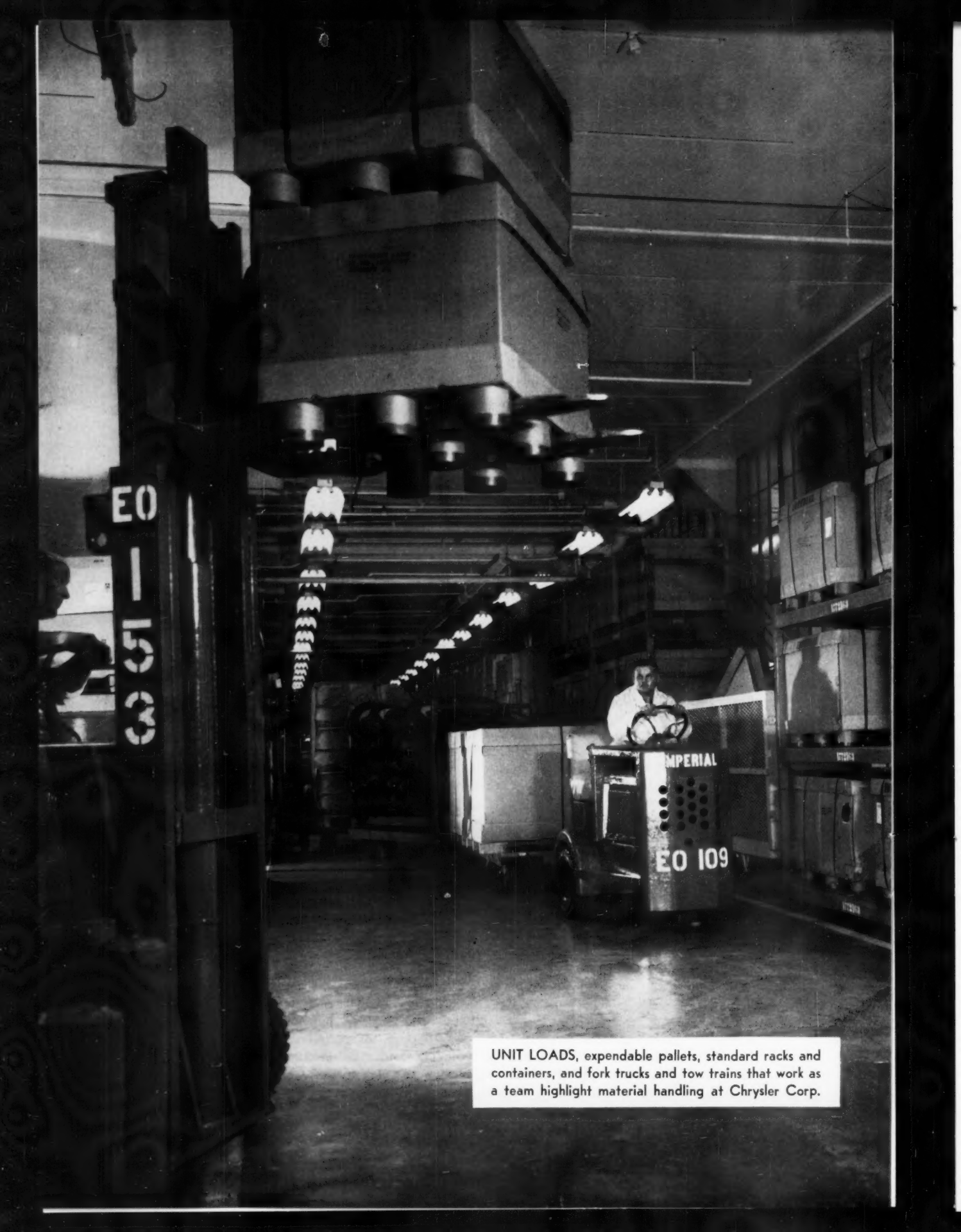
**CONTROL CENTER** gives fast, accurate selection of bodies in paint area. Components will meet body shell on the assembly line.



**OVERHEAD CONVEYOR** carries small parts from paint oven. They will be removed from the conveyor for truck delivery to assembly line.



**ENGINE CARRIERS** are C-shaped and have fixture assemblies which swivel. This allows men to work on engines with minimum handling.



UNIT LOADS, expendable pallets, standard racks and containers, and fork trucks and tow trains that work as a team highlight material handling at Chrysler Corp.





A material handling system should extend from raw material to user. It should cover everything from plant location to container selection. That's why Chrysler Corporation says . . .

## Don't Solve Handling Problems in Bits and Pieces

**H**OW do you eliminate excessive handling costs? There is only one way, says Chrysler Corp. "Engineer them out of manufacturing."

Material handling is so interwoven into practically every operation that you cannot approach it in isolated spots. An improvement in one department may be limited by the handling methods and facilities of adjacent areas. You must take a broad view of the problem.

You have to think about material handling problems as soon as you decide to make a product. Chrysler management recognizes that handling efficiency is affected by early decisions such as the location of the plant, the type of building, location of shipping and receiving, floor load capacities, column spacing, truss heights, building cranes, and overall building size. Equally important are physical characteristics of the parts and the volumes to be handled.

To solve material handling problems Chrysler attacks them from many angles: 1. Makes the early, basic plans with material handling in mind. 2. Engineers facilities and manufacturing processes to take advantage of the best material handling methods. 3. Considers material handling in scheduling and control of production.

This basic approach establishes a smooth flowing, highly efficient, integrated material handling system. It gives a planned flow of material between plants as well as within plants—assures that the right parts are at the right place at the right time.

Material handling engineering at Chrysler establishes the most economical and efficient ways to move, handle, and store materials. It also establishes the basic tools of a coordinated material handling system. These tools include: 1. Standards for containers, trailers, industrial trucks, and handling aids. 2. Procedures and instructions. 3. Engineering technical data covering all phases of material handling.



Chrysler puts the material handling engineer on the management team in a . . .

## 3-Level Approach To Handling

**M**ATERIAL HANDLING ENGINEERING is organized on three levels at Chrysler Corp.—to attack problems where they can be solved most effectively. At each level the material handling engineer is recognized as a member of the team with equal status that enables him to work effectively and produce the savings expected. Chrysler says: "If the engineer is used as a "fireman" he will never be able to work out the systems required or do the planning and engineering job he was hired for. We can't afford to waste material handling engineers on routine tasks that should be done by operating personnel."

Chrysler's policy is to stress the overall approach to material handling, but not at the expense of the many individual handling problems. Each handling problem is studied independently, but the solution must fit into the overall handling system.

### The Organization

Material handling engineering operates on three levels at Chrysler. The local material handling engineering group serves as a staff group for the plant. The division material handling engineering groups do the same job for the divisions. And the staff material engineering department serves the entire corporation.

**Staff level**—The job of staff material handling engineering is to:

1. Recommend handling methods and procedures.
2. Develop and publish material handling standards and technical aids.

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3. Assist in the development and operation of a durable container control program.
4. Review projects and programs of the corporation that affect material handling costs.
5. Conduct equipment research and development.
6. Advise and assist division planning.
7. Prepare studies and reports on material handling aspects of manufacturing facilities, product revisions, and volume changes.
8. Make performance audits of material handling operations at Chrysler plant levels.
9. Initiate handling cost reduction programs.
10. Assist in the establishment and operation of training programs for material handling engineers and operating personnel for all Chrysler activities.
11. Help to incorporate safety in all material handling equipment.
12. Develop standard material handling forms.
13. Review product planning programs to assure that material handling costs and all other handling factors have been considered.

The staff material handling engineering department cooperates with the engineering division, finance, industrial engineering, master mechanic, plant engineering, preproduction planning and analysis, product planning, production programming, purchasing, quality control, and traffic to make sure that the material handling factors of all new designs, products, or facilities are considered.

**Division level**—Material handling engineering at each of Chrysler's 11 major divisions is responsible for carrying out all aspects of an integrated program (for the steps in this program see page 104). This includes determining how each part will be packaged or contained, how it will be handled, how the end product will be packaged (or contained) and shipped. It also includes determining what's needed in plant facilities and equipment for material handling. The division material handling engineering must also determine:

1. Types and quantities of material handling equipment needed.
2. Receiving and shipping facilities needed.
3. Stock storage area needed.
4. Space and arrangement for line feed.
5. Best use of existing material handling plant facilities.

Division material handling engineering makes sure that the standards are adhered to. This simplifies selection and procurement of equipment, and reduces maintenance. Transportation methods are reviewed by the division to increase the use of equipment, improve loading and unloading, and reduce detention and demurrage charges. Handling and storage methods are also reviewed by the division to improve the use of equipment and facilities, to reduce handling labor and equipment costs, and to provide a plan

*(Continued on page 148)*



Why use hundreds of container sizes and shapes when only a few sizes will solve all your needs? Chrysler found that . . .

## Container Standardization Cuts Handling Costs

**W**HEN Chrysler's Staff Material Handling Engineering Department was founded, the corporation was using a great number of different sizes and shapes of containers. It immediately visualized the tremendous stock handling problems confronting its plants. It went to work and established 5 standard containers plus standard accessories that can do 90 to 95 percent of Chrysler's in-plant handling, storage, and shipping jobs. Because of special shipping problems or extremely large parts, some special containers will always be needed, but they are held to an absolute minimum.

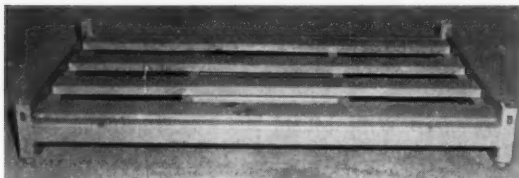
### The Plan for Standardization

Chrysler had 184,285 containers. The material han-

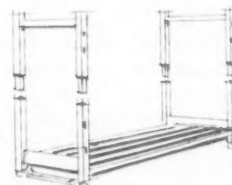
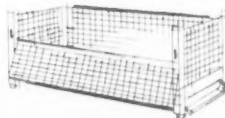
dling department showed how they could eliminate 750 of the 858 sizes and shapes by replacing 24,436 containers. By planning to retire 20,000 containers each year from 1959 through 1962 the number of container types will be further reduced and the establishment of standardization speeded.

### Theory of Standardization

Durable metal containers are the basis of Chrysler's future handling programs. It found that wooden containers and returnable wooden pallets are generally costly for in-plant use and for local shipments between Chrysler plants.



BASE of the standard rack is 80 x 48 inches, can be used as a pallet. Adding end frames protects loads and permits stacking. Side bars are added when more protection is needed. Wire mesh bin assemblies enable you to handle loose parts in bulk. Higher end frames can be used with rack accessories or larger wire bin assemblies.



## Container Standardization

However, for in-plant storage, pallets are sometimes ideal. If material can be stacked on pallets and has to be stored much longer than usual it may be cheaper to use wooden pallets rather than tie up more expensive durable pallets."

Portable durable containers are under central control at Chrysler because:

- Purchase of small quantities can be avoided by centralized purchasing. Ordering of large quantities permits cost-saving competitive bidding.
- Smaller inventories are needed as central control permits the transfer of excess containers to locations where they are needed.
- Examining requests for containers and their intended use results in more efficient and economical container use.

- Allocating specific types and quantities of containers for specific use results in more efficient and economical use of all of the containers.

- Centralized repair can be established which is cheaper and provides better maintained containers.

### What's Wrong With Specials

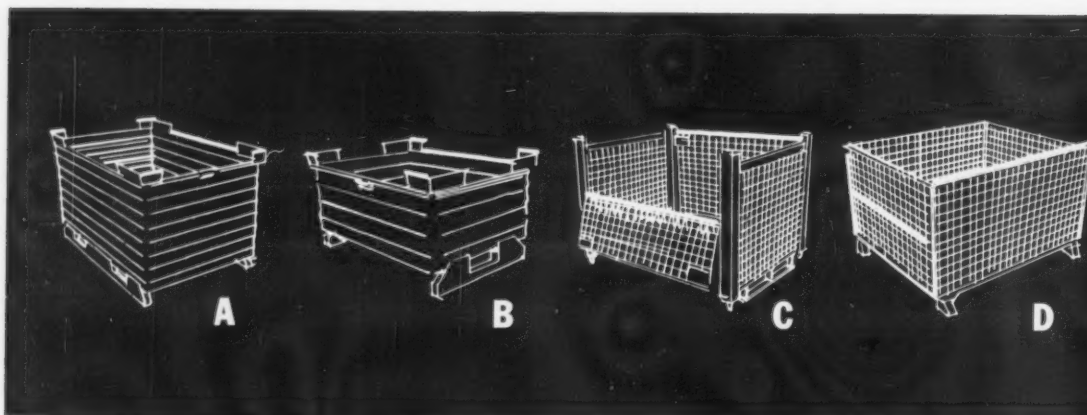
If you use special containers, you must buy enough to meet the peak loads you expect. If production is cut back on the part, lots of empty containers are available that cannot be used for other parts.

When dunnage is permanently attached, the container is automatically a special and you lose the advantages of standardization. And you have increased costs unnecessarily. Changes in the part design, the supplier, or the way of transportation make the container obsolete or require expensive and time-consuming alterations.

### Chrysler Container Standards

Standard procurement specifications have been issued for 3 metal bins, 2 tubular steel racks, 4 rack bin assemblies, and 8 rack accessories. They provide the basis for most of Chrysler's handling needs. The containers and their accessories have been designed to handle many different parts and to have maximum

## Chrysler's Standard Containers—



**A. CORRUGATED STEEL BIN.** Capacity: 20 cubic feet, 7,000 pounds. 360 pounds tare weight. Container is used in shipping, storing, and in-process handling of small stampings, castings, forgings, fasteners, and similar parts that can be handled in bulk. Slots in the runners permit dumping by fork trucks equipped with rotating fork heads.

**B. CORRUGATED STEEL BIN.** Capacity: 5 cubic feet, 3,500 pounds. 160 pounds tare weight. This container has the same uses as the 20 cubic foot bin and is especially suited for small, dense parts which in a larger container create a load beyond the capacity of most industrial trucks.

**C. WELDED WIRE MESH BIN** with structural frame. Capacity: 33 cubic feet, 6,000 pounds. 355 pounds tare weight (2 x 1 inch mesh). Container is used for rail or truck shipments of parts which can be handled in bulk without damage. The top half of each mesh side is hinged, drops to make loading and unloading easier. Material cannot be dumped into or from this container.

**D. WELDED WIRE MESH BIN** with collapsible sides. Capacity: 25 cubic feet, 5,000 pounds. 200 pounds tare weight. Container is designed for common carrier shipments where its low tare weight and collapsibility are advantageous. The bin can be tied but can't be handled by overhead equipment or pulled or shoved.



flexibility and interchangeability. They can be tiered for full use of storage areas and carrier space.

### Container Use

At Chrysler the selection and use of durable containers usually depends on the nature of the job. If standard durable containers can be justified, they are specified instead of expendable containers.

Here are the guides Chrysler uses in determining if standard durable containers should be used, and which one should be selected:

1. A container should be filled to at least two-thirds of its cubic capacity without exceeding its weight capacity. The gross load should be agreed on between shipper and receiver to be sure that adequate handling equipment is available.
2. A mechanically handled container (rack, bin, etc.) should not be used when the number of parts per container exceeds 20 days requirement at the receiving location.
3. Often the transportation medium will affect the choice of durable containers. Normally it's more economical to specify light weight containers for shipment by common carrier truck where container tare weight is important and where return freight must be considered. The use of durable containers is generally

more economical where Chrysler or vendor-owned transportation is used. These containers have a longer life and are consequently less expensive to use.

4. The type of container for in-plant storage or handling depends on the material and operations involved, production schedules, floor requirements, floor loading restrictions, ceiling heights, and capacity of handling equipment.

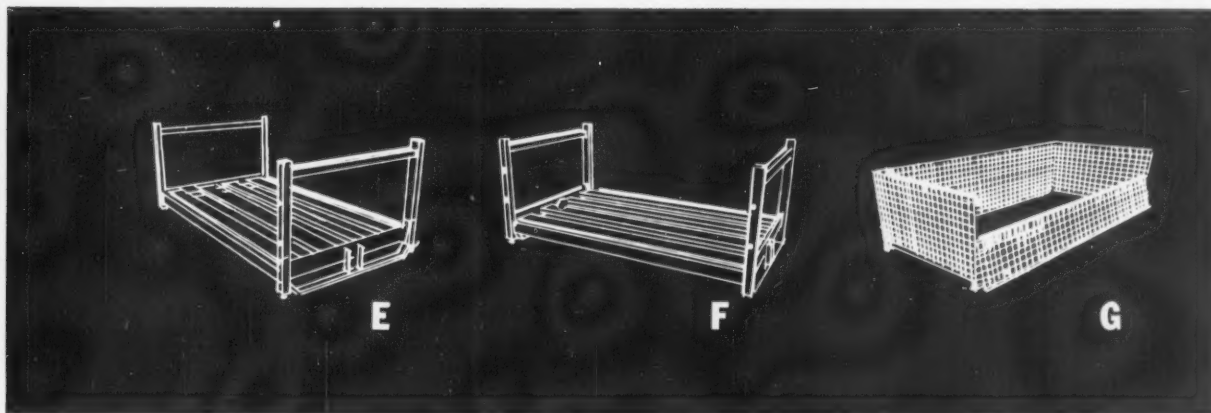
5. Chrysler-owned durable containers may be supplied for shipments from vendors if adequate control and good handling by the vendor can be assured, and if a substantial saving and reasonable return on the investment are made.

### Container Versatility

Chrysler uses standard accessories designed so that they can be quickly added to, or detached from, the standard container. Special container dunnage is designed, when needed, so that it will fit into the container without permanent attachment. Dunnage can be designed and fabricated before it's needed, then quickly and easily inserted into the racks.

But Chrysler does not allow its standard containers to be modified in any way. (A modification is any permanent attachment to, or deletion from, the standard container.)

## Fit Up to 95 Per Cent of the Jobs



**E. TUBULAR STEEL RACK.** Capacity: 5,700 pounds distributed load. 440 pounds tare weight. Container is used for in-plant storage and shipping. Accessories increase rack flexibility, are used to position, protect, and retain the load or to supplement special dunnage. The rack has four floor boards. When bin accessories are used, 2 x 6 inch lumber can be laid in loose to provide a full floor. One end frame is fixed, one is removable.

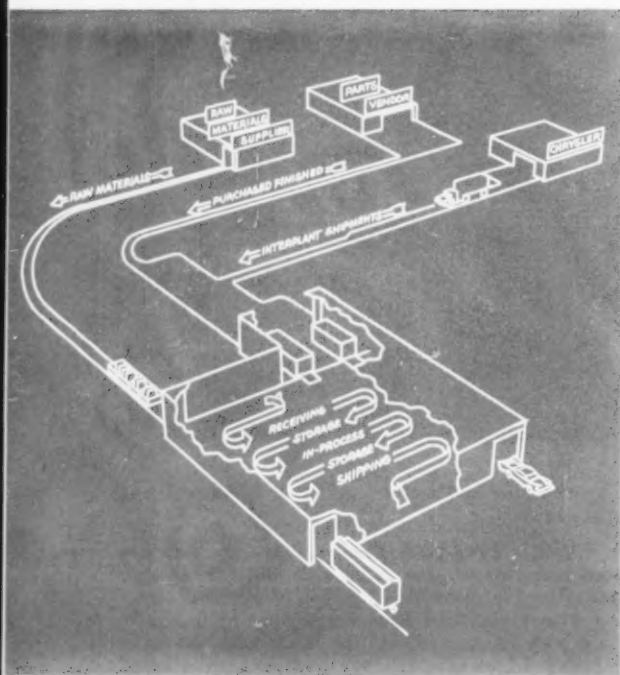
**F. TUBULAR STEEL RACK.** Capacity 6,000 pounds distributed load. 360 pounds tare weight. Container is used for shipping, storage and in-plant handling. Its use of accessories is the same as the 5,700 pound rack. It has the additional advantage that both end frames

are removable and can be collapsed when returning empty racks.

**G. RACK BIN ASSEMBLIES.** Two sizes of welded wire mesh racks are used with each of the tubular steel racks. The bin assemblies for the smaller rack are 2 and 4 feet high and have capacities of 45 and 90 cubic feet. Those used with the larger rack also come in 2 and 4-foot heights. They have capacities of 62 and 125 cubic feet. Rack sides are hinged to speed loading and unloading. Load limits of the rack bin assemblies are governed by the capacity of the rack. However, they should not be subjected to horizontal impacts. The assemblies are used for storing, handling, and shipping loose parts which can be handled in bulk.

Material handling at Chrysler starts with packaging and shipping in its supplier plants, includes receiving, storing, and in-plant distribution, and extends to packaging and shipping to the customer or receiving plant. For information on blending all these jobs into an efficient system read Chrysler's views on . . .

## How To Plan Material Handling



**MATERIAL HANDLING** problems are so interwoven into manufacturing that it is impossible to isolate them. That's why Chrysler Corp. integrates material handling—from packaging at supplier plants to the customer.

**T**O INTEGRATE material handling requires detailed analysis of all the factors involved. Chrysler examines these factors in the following order:

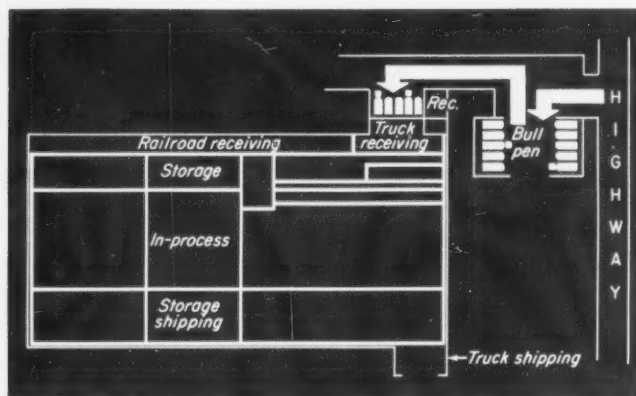
- I. Preliminary planning and basic data.
- II. Packaging and transporting of inbound material.
- III. Unloading and in-plant distribution.
- IV. Reserve storage.
- V. In-process handling and storage.
- VI. Packaging and shipping of outbound material.

### I. Preliminary Planning

Because day-in day-out handling conditions are a direct result of the initial manufacturing decisions, it's important to inject material handling thinking into the initial planning of the plant. The material handling engineer must help in: 1. Plant location, because it affects transportation methods and costs. 2. The basic handling plan, which will help determine the general shape and type of plant. 3. Plant size, bay sizes, truss heights, and floor load capacities because of their effects on warehousing and handling equipment selection.

As preliminary bills of material, production volumes, and float formulas become available, the material handling engineer determines the general storage areas needed before the size of the building can be established. He also determines the number of rail and truck spots for shipping and receiving.

The material handling engineer takes part in the



**TRUCK UNLOADING** is more efficient in high volume operations when a Bull Pen is set aside where trailers are parked until they are scheduled into receiving.

preliminary layout. The basic approach to the material handling plan must be established early. At Chrysler this means the use of unit loads with lift truck and trailer train handling. Aisles in the plant and on the docks are made wide enough for this type of system. Storage areas are roughed in on preliminary plans to fit in with the production flow.

Next comes the more detailed material handling plan. It must be based on the latest available data—complete bills of material, source lists, production operation sheets, float sheets, production volume, cycle schedules, part weights, and if possible, sample parts and prints.

Each part is followed from its source through production and shipment. In each instance the material handling engineer decides how the part will be packaged, moved to the plant, unloaded, stored, delivered to the first operation, moved and stored between operations, packaged, loaded, and shipped.

Later the engineers can firm up such items as storage areas (size, shape, and location), dock layouts, overhead cranes, doors, and aisles. After completing the detailed processing, summaries are made to determine total storage space, container requirements, industrial truck and tractor requirements, and the need for trailers and other material handling equipment. Tow train routes are established and studies are completed to determine operating areas for each fork truck.

### Guideposts for Planning

Chrysler uses these principles in establishing a handling system:

1. Use unit loads and mechanical handling whenever feasible—minimize manual handling.
2. Keep flow in as straight a line as possible.
3. Keep handling equipment flexible for interchangeability and layout changes.
4. Standardize equipment and, if possible, restrict the variety of standard equipment in a plant for ease of operator training, maintenance, part inventories, and interchangeability.
5. Schedule handling to minimize rehandling and special trips.

## II. Inbound Material

Planning the packaging, handling, and moving of inbound material and components is the material handling engineer's job at Chrysler. He must obtain detailed information on the material or parts involved, such as part size and weight, material, finish, and damage potential. Quality, as well as cost, is important in engineering the handling of parts. The engineer is responsible for developing adequate protection of parts during handling and moving.

The material handling engineer next finds out how much material must be handled in a given time, and what kind of floats are needed for each part. He uses this information, along with the product or part information, to determine the type of packaging to be used and the method of transportation. Later this information is used to determine receiving facilities, container requirements, storage space requirements, and line feed arrangement and space requirements.

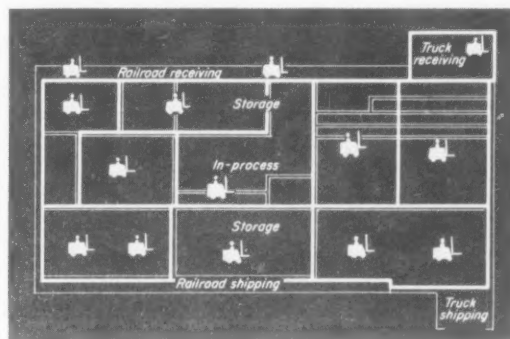
In a completely coordinated handling system the source must be considered. Is the plant a vendor or another Chrysler plant? Where is it located? How do its facilities limit handling and shipping? What transportation facilities are available? Answers to these questions and the over-all handling plan help the material handling engineer in the selection of the package to be used, the transportation method, and shipping quantities.

Not only does material handling engineering at Chrysler review how packaging fits physically into the over-all plan for receiving, handling, storing, and distribution, it also reviews the costs. Packaging material costs, labor costs of packaging and handling, freight costs, carloading dunnage costs, repair costs applied to durable containers, and cost of potential damage all must be considered. All of these costs depend on how the parts are shipped—loose, in bundles, in manually handled packages (weight limit, 65 pounds), in expendable pallet packs, in durable containers, or in specially equipped railroad cars.

### Rail or Truck?

Chrysler considers first the items shipped in carload quantities. Generally this is an important part of

*(Continued on page 150)*



**FORK TRUCKS** work in specific areas which are equal in work loads. Long runs are made by trailer trains.

Here's how Chrysler integrates the latest in material handling. Read the theory, plan, and operation of how the . . .

## Imperial Plant Puts Material Handling

**E**VERY DAY more than 500 tons of material must be received, moved, and systematically stored at Chrysler's new Imperial plant at Dearborn, Mich. There are more than 4,000 parts. Their weights range from a fraction of an ounce to 700 pounds (engines). Some measure only fractions of an inch, others go up to 9 feet (quarter panels). All these variations add to the complexity of the handling job.

The Imperial plant's new material handling system is "a planned flow of material through all phases of production manufacturing to gain the highest efficiency

possible." Over five months were required for its installation. It takes more than 100 skilled workers to run it. Nearly 4 miles of conveyors are used in manufacturing. Thirty pieces of powered equipment (ranging from a 25,000-pound crane for handling coal to a 500-pound pallet truck for production handling, and including fork trucks and tow tractors) are needed to maintain material flow.

Backing up the material handling program is a streamlined IBM system. It uses nearly 15,000 separate sheets to keep a record of each incoming part.



**FORK LIFT TRUCKS** take material from the trailer trains and move it to reserve storage or line feeding stations. Loads are set in racks close to where the ma-

terial will be used. Fork trucks operate within an assigned area, and are used only for round trips less than 300 feet. Trailer trains are used for longer hauls.



# To Work

## Other Features of the System

- It controls packaging of incoming material to save unloading time.
- It stores incoming material in four types of portable standard containers. Uses over 3,000 containers to expedite handling.
- Uses three types of standard trailers in the trailer-trains that move material over six routes in the plant.
- It assigns fork trucks to work in specific areas.

## Unloading

All material unloaded on the dock is loaded onto wheeled equipment. It's easy to unload trucks and freight cars and get material into the system quickly because the plant controls the packaging of incoming material. The portable containers used are a 48 x 106-inch storage rack, a 48 x 80-inch rack, a wire enclosed 42 x 53 inch rack bin, and a corrugated steel stock bin. The containers are moved into the plant on three sizes of standard trailers, 48 x 106, 48 x 80 and 42 x 53 inches. Tow tractors pull three of the 48 x 106 inch trailers or four of the smaller ones.

Items in short supply often arrive by air or rail express. They are unloaded and checked promptly and a tow truck makes special deliveries to the production line.

When mixed loads of material are received (parts with different destinations in the plant) the foreman makes sure that material is placed onto trailers according to the line feed and reserve storage location.

## Tow-Train Routes

Here are the items Imperial considered when establishing its trailer-train routes:

- The longest and shortest distances around each route.
- The standard trailer hook-up and drop-off times for both empty and loaded trailers.
- The volume of material that must be transported daily over each route.
- The return of empty equipment to the unloading facilities where each route begins and ends.

Six trailer-train routes were established for the



**LIFT TRUCK** loads hay bales from vendor shipment. Racks will be loaded onto a trailer and put on the trailer-train route that take them to where they are used.



**WALKIE** powered equipment is used to place containers on trailers in position for line feeding. They are also used to move empty trailers to where the tow train picks them up. The walkie grips the trailer on the front bar to move it; frees fork trucks for the lifting jobs.

Imperial plant. One is for "hot" items.

The tow tractor never travels unloaded. Warehouse and line feed supervisors see that empty trailers are made available for return to the unloading docks.

## Fork Truck Areas

The Imperial plant is divided into six areas for the use of powered equipment. Four areas have one fork truck each, and two have two trucks apiece. These areas generally coincide with the areas of a foreman's supervision.

Here are the rules for the use of fork trucks at the Imperial plant: 1. Each truck must operate within its assigned area. 2. Line feeding by fork trucks is limited to short moves; maximum round trip is 300 feet. 3. Fork trucks are used to support trailer train operations.

To move containers on trailers to line feeding stations, Imperial uses walking type tow tractors. They are assigned to specific areas to help the fork trucks.

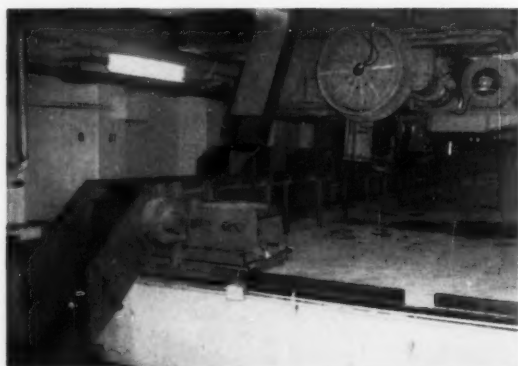
To keep the fork truck areaization program operating, the transportation foreman makes sure that each area foreman has enough fork truck service to handle the work load. He temporarily assigns trucks

*(Continued on page 200)*

## Scrap Handling



TRIM falls down gravity chutes at press onto lateral conveyors in the basement. No scrap piles up at units.



VIEW under presses show lateral conveyor leading to main scrap line. Feeder belts are 2 or 3 feet in width.



NETWORK of 28 lateral conveyors feeds into 1,500-foot main scrap line. Scrap travels directly to baler.

**B**ETWEEN 800 AND 1,150 tons of raw steel are processed daily at the Ohio Stamping Plant of the Chrysler Corporation at Twinsburg, Ohio. As much as 300 tons of baled trim, a by-product of automotive stampings, leaves the plant daily.

There's a special handling system just for this material. It disposes it continuously and effectively. The company's very pleased with it.

Core of the system is a 1,500-foot-long steel belt conveyor. It runs the full length of the plant, rises 70 feet, discharges atop a baler house. Inside, two balers each can make an 800-lb bale in 30 seconds.

Trim (cut off metal) drops into chutes on the presses, then into gravity chutes in the floor. The scrap falls onto lateral conveyors beneath the production area.

There are 28 of these lateral conveyors. They feed into the main pan-type continuous chain. The main belt is 54 inches wide. The feeder belts vary from 2 to 3 feet in width. The main belt has cleats that help the scrap flow, prevent jamming. Load-bearing flooring covers gravity chutes from press floor level to basement when they're idle.

### One Man Control

The main scrap handling is controlled by one man at the baler house. There, in the console, through push button control, he regulates the speed of the main conveyor. He directs the loading of scrap into the balers. He directs the car puller, which positions gondolas to receive the heavy scrap bales. His place atop the 70-foot-high baler station gives a clear view.

The need for fast removal of scrap becomes clear when you think of the production figures. Over 800 dies make 400 parts. Over 255 presses cut steel into roofs, doors, floor pans, trunk lids, everything down to brackets and supports. These parts are shipped to assembly plants in the United States and Canada. The manufacturing area alone covers 1,707,362 sq. ft.

Plant Engineer R. D. Mahrle says "Our scrap handling system is modern. It is doing a good job for us. It's lived up to expectations, and has run now for the 2 years we've been in operation without a major break." It was designed by May-Fran Engineering Co.

### Conveyor Sunk Into Floor

The 1,500-foot-automatically-lubricated conveyor is

# System Moves 300 Tons A Day

sunk below the basement floor level. It's easy to bridge, and this helps save much travel time.

The press operators control all lateral conveyors from the first floor. If a press isn't running, its conveyors can be shut off independently. Indicating lights show if the conveyor is operating.

If the main conveyor stops, there is no danger of overload because all belts stop at the same time. A horn automatically warns that the main line has stopped. When the trouble has been corrected, a supervisor stops the signal from ringing, indicating production to resume.

Why so much scrap? First material off a coil is not used. Some sheets are bent in handling. They reject substandard parts. But trim, of course, is the main source. Wherever possible, however, smaller parts such as brackets, are cut from trimmings.

Bushlings (small pieces of scrap) are handled as loose scrap. They are not baled because they would

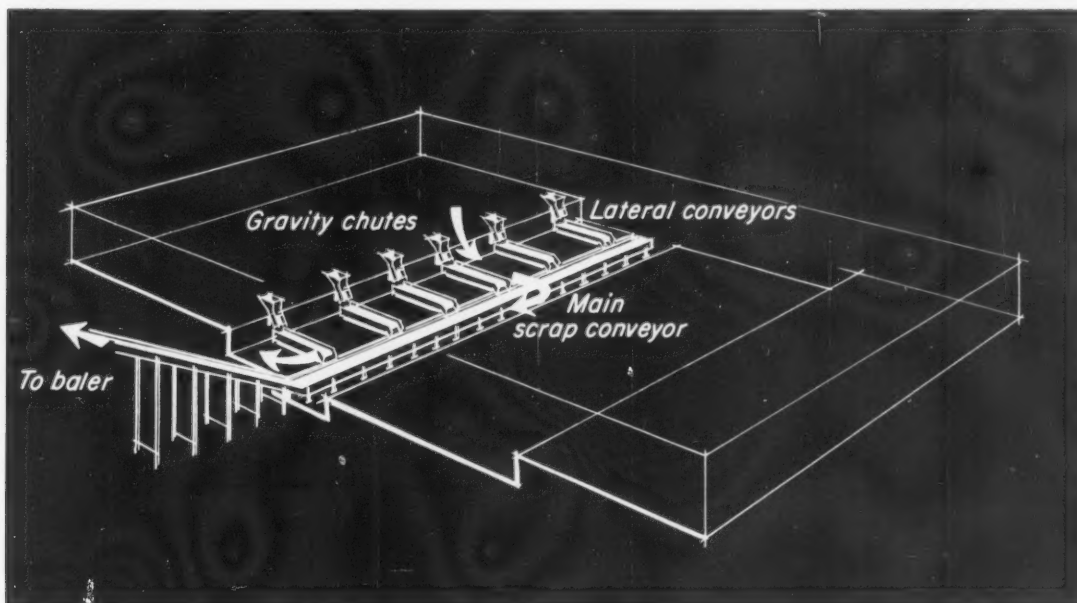
jam the baler. They are emptied from skid boxes directly into trucks or gondolas.

Three engineers are working constantly at the Stamping Plant to devise better material handling methods. A special handling rack was recently designed on which car doors are now shipped alternately right side up and upside down. More doors can be shipped on the rack in the same amount of space used before.

Most of the handling at the Ohio Stamping plant is done by fork trucks and dollies. Cast iron machine scrap from the Tool Room is handled on Hapman chip conveyors.

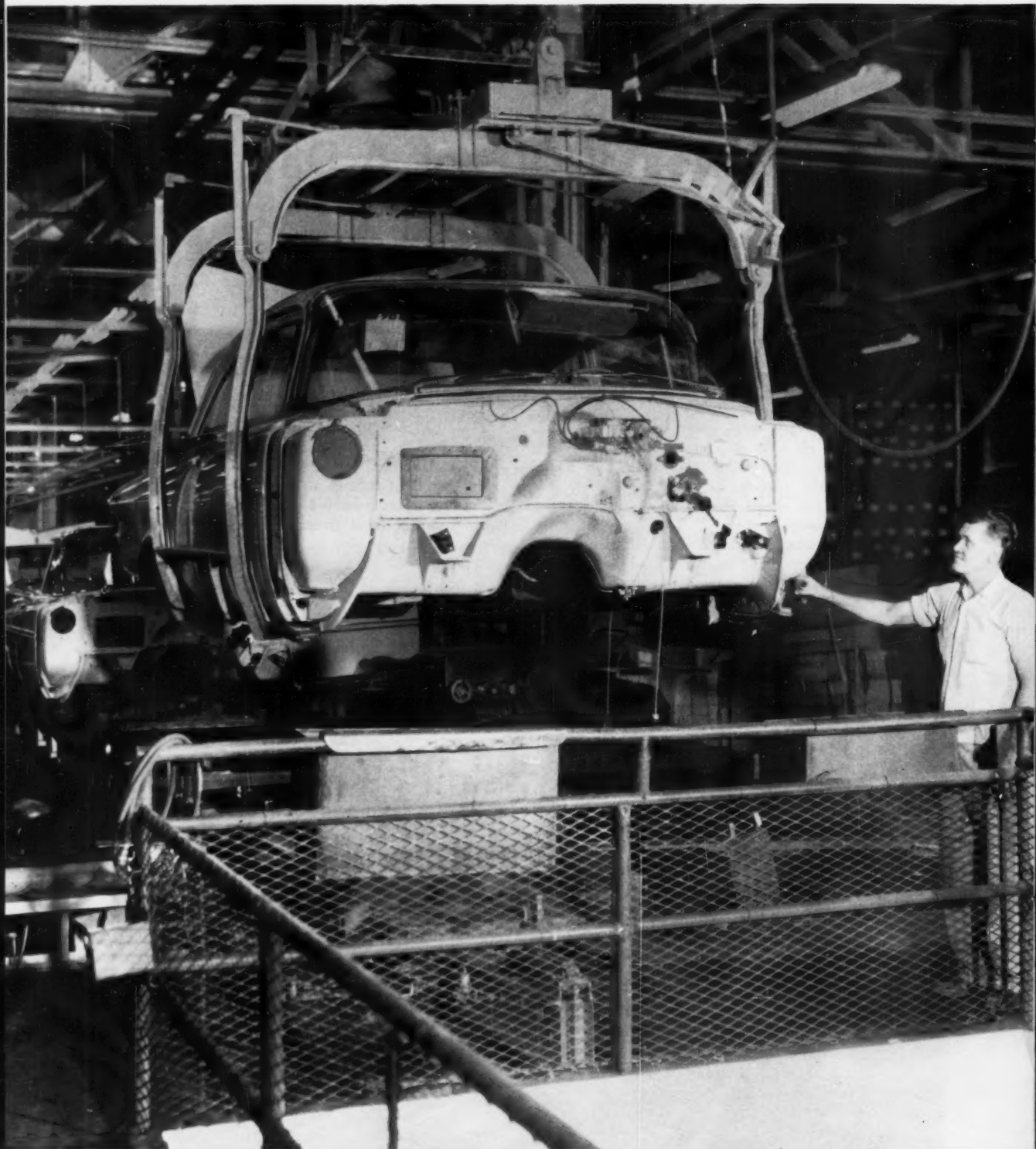
Depending on the item, box cars are loaded rack style or by stack style.

A magnet attachment on 2-ton mobile crane is used to trim gondolas containing the scrap bales. This gives a better, more uniform load, makes cars acceptable to the railroads, and attractive to scrap dealers.



PRODUCTION process moves in a straight line at Chrysler's Ohio Stamping Plant. Material handling and

back tracking is minimized. Fast flow of scrap through plant keeps manufacturing area clean, safe, workable.



TWO LINES JOIN INTO ONE at Chevrolet assembly plant. The body drop is the most critical point in the assembly operation. Here body and chassis combine

into a car as an electric hoist lowers the body onto the frame line on the floor below. This precision handling is typical of handling at all General Motors plants.





Every division of General Motors is on its own. But they all follow the same basic material handling concept . . .

## The Best Material Handling Is No Handling At All

**W**E at General Motors feel that the best material handling is no material handling at all. Every time you touch a product you should add to its value. Material handling adds no value; it's overhead all the way. . . . *John Q. Holmes, Director, Production Engineering Section, Process Development Staff, General Motors Corp.*

That statement sums up management's attitude toward material handling at General Motors. But make no mistake. It does not mean that GM holds the material handling function in low esteem. On the contrary, few companies have a higher regard for material handling and its cost-cutting potential.

Material handling at GM is decentralized, like most production operations. There are 40 manufacturing divisions of GM, with 126 plants, turning out products that vary from motor cars and trucks to ice cube machines. Under corporate policy each division is a separate business operation; many of them actually compete with each other.

Each division decides whether or not its handling is to be centralized. Most of the divisions have separate plants spread far apart. Sometimes all plants are under one material handling department. In others it's up to the individual plant. Chevrolet and Fisher Body, for example, have strong centralized control over all plants.

The man in charge of material handling for each division is usually the production and material control manager, or someone directly under him.

The closest GM comes to a material handling department on the corporate level is the General Motors Material Handling Committee. This is strictly an advisory group. It consists of at least one representative from each division. It does not establish policy—just recommends.

GM completely integrates packaging with material handling. There is only one exception: replacement parts packaging. That is a separate responsibility, because it's so large and specialized.



*Engineering*

GM divisions insure good handling by keeping each other informed of their latest techniques, findings. That's why . . .



## We Have Our Own Material

by John Q. Holmes  
Director, Production Engineering Section  
Process Development Staff  
General Motors Corp.

A CONSTANT EDUCATING JOB keeps material handling men sharp at General Motors. That's our secret to successful handling.

Under our decentralized organization, each division has complete charge of its own handling. But all the divisions know what the others are doing—what's successful, what's unsuccessful, how certain tough handling situations are overcome, what equipment works best, etc.

It's our job at the Production Engineering Section of the Process Development Staff to keep them informed.

We are the headquarters for the General Motors Material Handling Committee. This group is composed of at least one representative from each GM division. It's almost like our own private material handling society. It's the closest thing in GM to a material handling department on the corporate level.

Activities of the Production Engineering Section cover several fields. Material handling is only one of them. Others are chemistry, industrial waste control, master mechanics activities, metallurgy, plant engineering, plating, quality control, rubber and plastics, shop lubrication, forging, foundry, hazardous materials, and painting. There is a committee similar to the material handling committee for each of these activities.

### How the Main MH Committee Works:

Each division usually appoints its top material handling man or men to represent it on the committee. He is usually a superintendent immediately under the production and material control manager.

This committee usually meets once a year. Meetings may be at any GM plant, or they may be in one of our suppliers' plants. At these meetings the committee members exchange ideas. That's the main purpose of the

committee. One member may report how his division dealt with a tough handling job. Another may deliver a paper on a particular type of equipment he's especially familiar with. Or members may thrash out an unsolved problem that one of the divisions faces.

This way, all the divisions keep informed of what the other 39 are doing, and they profit from each other's experience.

Participation in this committee is strictly voluntary. Divisions may or may not attend the meetings. Or, if they do attend, they may choose to accept its recommendations or ignore them.

### Material Handling Sub-Committees:

In addition to our main material handling committee, we also have six sub-committees on various phases of handling and packaging. These are:

Containers, Conveyors, Export Packing, Industrial Trucking, Measuring Devices and Procedures, Transportation.

These sub-committees work like the main committee, only more specialized. But only those divisions that are interested in a specific sub-committee send a member to that particular group. He is usually not the same man that represents the division on the main committee. Some divisions may send representatives to all the sub-committees. Others may be interested in only one or two. It's entirely up to them. It depends on their needs.

Sub-committees meet two to four times a year—more often if needed. Most meetings are held in GM plants, but occasionally they're held in suppliers plants. Like the main committee, the meetings are mainly to exchange ideas. Members may report on new trends in equipment, discuss reports and articles, brainstorm each other's problems, or evaluate specific products.

Another important job of these committees is to prepare information for technical bulletins. We may publish one of these bulletins any time, on any handling subject, whenever one of the sub-committees issues a report we feel all the divisions ought to know about. These reports (*see the examples at right*) are

*Would you like an extra copy of this article? As long as they last, one or two copies are available free, larger quantities at cost. Write: The Editor, MATERIAL HANDLING ENGINEERING.*

# Handling Society

punched for standard three-ring binders, and each plant keeps a complete file of them. That file comprises the General Motors Material Handling Manual.

Like everything else the committees do, these reports are strictly for guidance and reference. Nobody in any of our divisions is compelled to follow them.

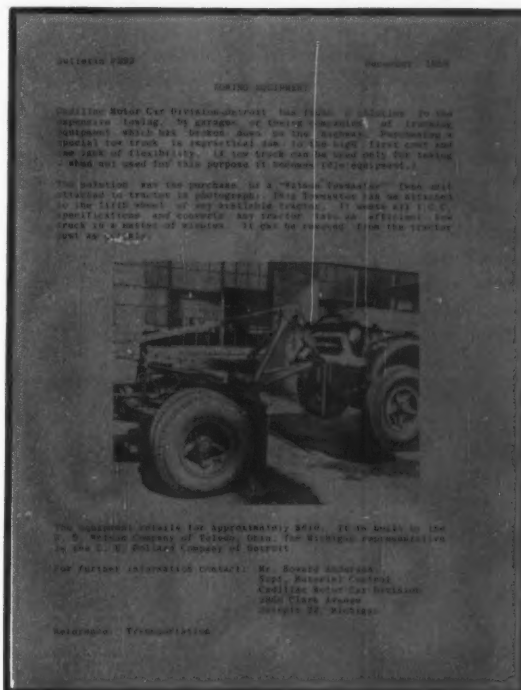
We have an advisory committee, too. It guides the activities of the six sub-committees. The advisory committee consists of the chairman and vice-chairman of each sub-committee. Each chairman generally serves 2 years, and since the vice-chairman usually succeeds him, there are six old members and six new. That way we maintain a continuity of membership on the advisory committee. The present sub-committee chairmen are: Containers, W. P. Moroney, Jr., Delco-Remy Division, Anderson, Ind. Conveyors, R. E. Gephart, Frigidaire Division, Dayton, Ohio. Export Packing, W. F. Flourney Chevrolet Motor Division, Detroit. Industrial Trucking, R. F. Dunham, Delco Products Division, Dayton, Ohio. Measuring devices and procedures, Eugene White, Inland Manufacturing Division, Dayton, Ohio. Transportation, E. F. Steslicki, Chevrolet Motor Division, Detroit.

Willis B. "Wib" Mallory is our top material handling man at the GM Production Engineering Section. Although no one man is in charge of all our material handling committee activities, he comes closer than anyone else.

Mallory's title is Contact Engineer, Material Handling Activities, Production Engineering Section. His job is to coordinate the activities of the many material handling committees just described. His office serves as nerve center and clearing house for material handling ideas and information of all kinds. There are 228 material handling men on Mallory's committees. He keeps them all informed through organized interchange of ideas.

## Packaging:

We believe at GM that packaging and shipping  
(Continued on page 133)



GENERAL MOTORS MATERIAL HANDLING MANUAL is composed of Idea Exchange Bulletins like this one, shown front and rear. These are the closest GM comes to a material handling standard. They describe how individual plants solve particular handling and packaging problems, or report on studies by company engineers. They're not published on a regular schedule, but when enough appropriate information is available.

At Chevrolet Assembly, when parts are handled  
is just as important as how, That's why . . .

## Precision Handling Is the Key to Automobile Assembly

**C**OORDINATION is the most important part of material handling at Chevrolet's assembly plant in Flint, Mich.

There's no manufacturing or processing in an assembly plant; it's almost all material handling. It has to be done fast, and done right.

Roy P. Futvoye, superintendent of material and production control, credits planning for the precision handling in his plant. '59 cars roll off the line at about one a minute, trucks about one every five minutes. In two shifts that's almost 1,000 cars a day. Truck assembly is a one-shift operation. To keep those lines moving, thousands of parts have to be at the right spots at just the right times. There's no allowance for mistakes.

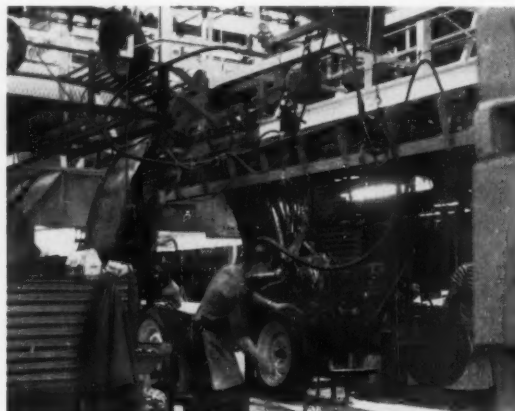


**TRIM LINE** (upstairs) where instruments, interior trim, radio, heater, etc., are added to the body as it comes from Fisher Body next door. IBM signal has already alerted all sub-lines as to what parts this car needs.

Material handling planning doesn't stop at the plant walls. Handling men also see to it that incoming parts arrive on time, in the right number and in the right condition. They base their needs on sales forecasts. Their careful behind-the-scenes planning, according to Futvoye, is just as important to success as the conveyors on the assembly line.

### Body Plant Adjacent:

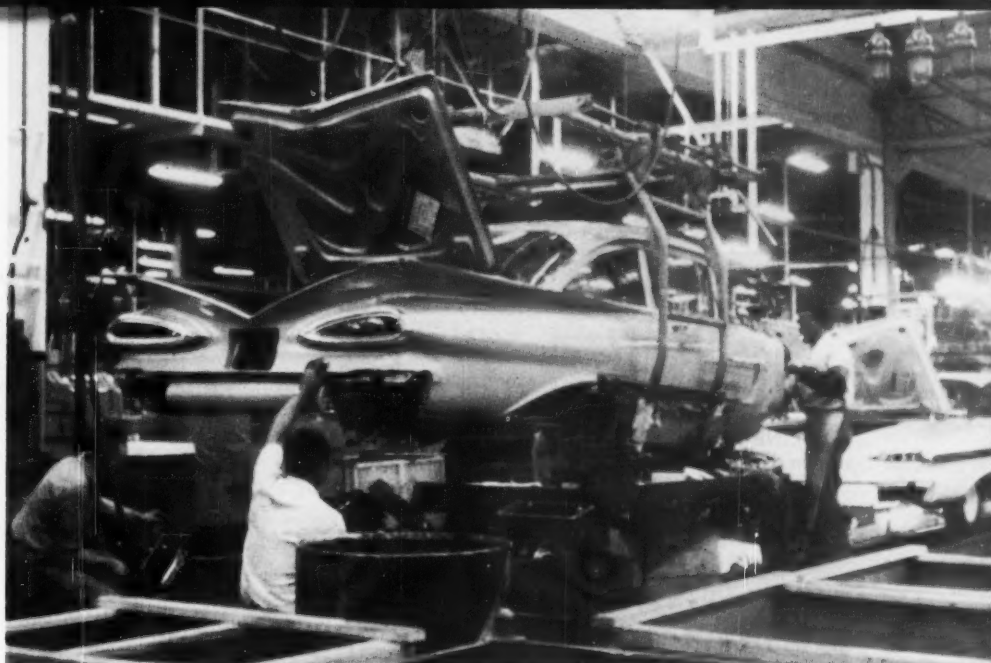
The Fisher Body plant that supplies the bodies is right next door. Although they belong to separate divisions, these two plants work almost as one. There's only a wall between them. Their combined floor space is approximately 1.4 million square feet.



**FRAME LINE** is immediately under trim line. While the body is being assembled upstairs, the frame for this same car is taking shape here. Note wheels (top left) coming from their sub-line on overhead conveyor.



**FOCAL POINT** of automobile assembly line at Flint Chevrolet is the body drop. Here the two major components of the car come together from separate lines. Frame is built on main floor, body upstairs. Clock-like precision handling is a must.



Parts coming into the assembly plant arrive at the rate of 60 boxcars and 30 trucks a day. The plant has two rail spurs, each accommodating 18 boxcars. The truck dock has six trailer wells.

#### **How Cars Are Built:**

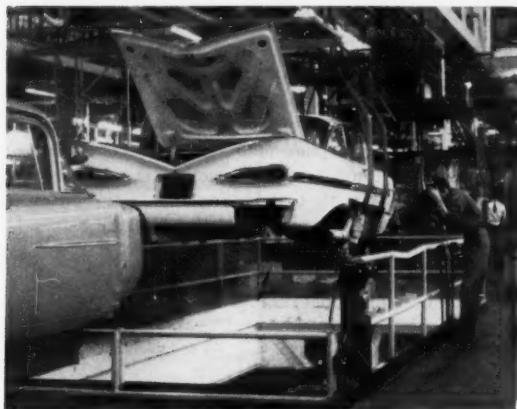
If all Chevrolets were alike, or even if there were just a few models to choose from as there were years ago, assembly wouldn't be nearly as hard as it is. But today the customer can choose from several body styles, power packs, colors, etc. Add such options as

radios, heaters, upholstery, and the many other choices a new car buyer has, and it's possible that on a given day no two cars going through the line will be the same. That's why the job of getting the right part at the right place at the right time is such a tough one.

When a customer orders a car, the dealer forwards the order form to Chevrolet, with a complete list of all the options the customer chose. As soon as that order reaches the plant and is processed, assembly begins.

First assembly step is building the body in the Fisher Body plant next door. It takes about two days to build the body, paint it, and install the seats. Once that's done the body goes by conveyor to the assembly plant.

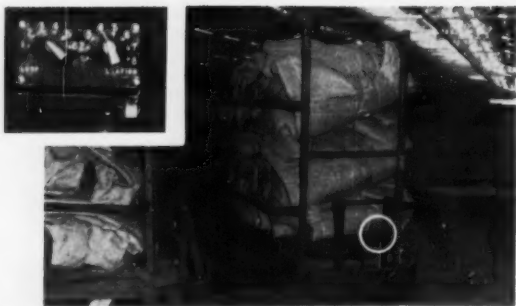
*(Continued on page 135)*



**BODY DROP** at end of trim line. This is the upstairs view of the operation shown in top photo. An electric hoist lowers body through an opening in the floor onto its frame below. Special clamp won't damage bodies.



**END OF THE LINE** is the test stand, where each new Chevrolet gets a thorough performance test. From here it's driven under its own power onto a carrier headed for dealer's showroom, one hour after assembly began.



**TOWLINE TRUCKS** go unattended to any warehouse station dialed on control box (inset). They can't collide.



**SHIPPING DOCK** of 27½-acre warehouse accommodates 16 rail cars, 16 trucks, ships a million lbs. a day.



**WIRE PALLET BOXES**, used for small parts storage, are stacked up to seven high by high lift fork trucks.



**PACKAGING STATION** where outgoing parts are packed. Sheet metal and glass are hardest to package.

## Ultra-Modern

**A** LITTLE OVER A MONTH AGO, on April 27, 1959, General Motors held the automotive spotlight with formal dedication ceremonies of Chevrolet Motor Division's new National Parts Distribution Warehouse. Located in Otterburn, Mich., near Flint, this warehouse is now the nerve center of all Chevrolet service parts distribution. It's the largest warehouse under one roof in the United States, and possibly the largest in the world.

### Statistics:

This warehouse has 1.2 million square feet of floor space. It has 1¾ miles of in-floor towline conveyors, which pull 700 trailers to and from any part of the floor, unattended. It has 33 powered lift trucks. It ships a million or more pounds of parts daily in some 30 rail cars and 25 trucks. Its receiving platform has room for 12 trucks and 14 rail cars. Shipping can accommodate 16 trucks and 16 rail cars. About 1,700 people (1,000 in the warehouse area, 700 in the office) keep the warehouse going.

Chevrolet stocks over 50,000 different replacement parts for all its cars. Some 9,500 of these are for the '59 models. (There are as many as 13,500 parts in some of the '59s). These parts range from tiny nuts and bolts to quarter panels and wraparound windshields. Out of the 50,000, about 4,000 fast-moving items account for 90 percent of the sales.

More than 4,000 fast-moving parts are actually stored in the new Otterburn warehouse. Other parts are controlled here, but stored in other warehouses. This warehouse also maintains national control of Oldsmobile and Pontiac replacement parts, stored elsewhere.

The Distribution Center's function is to keep parts flowing smoothly to the 41 regional warehouses in this country, 19 GM plants abroad, and to 130 independent foreign distributors.

The Distribution Center shows that good packaging can be simple packaging. He likes to use as few

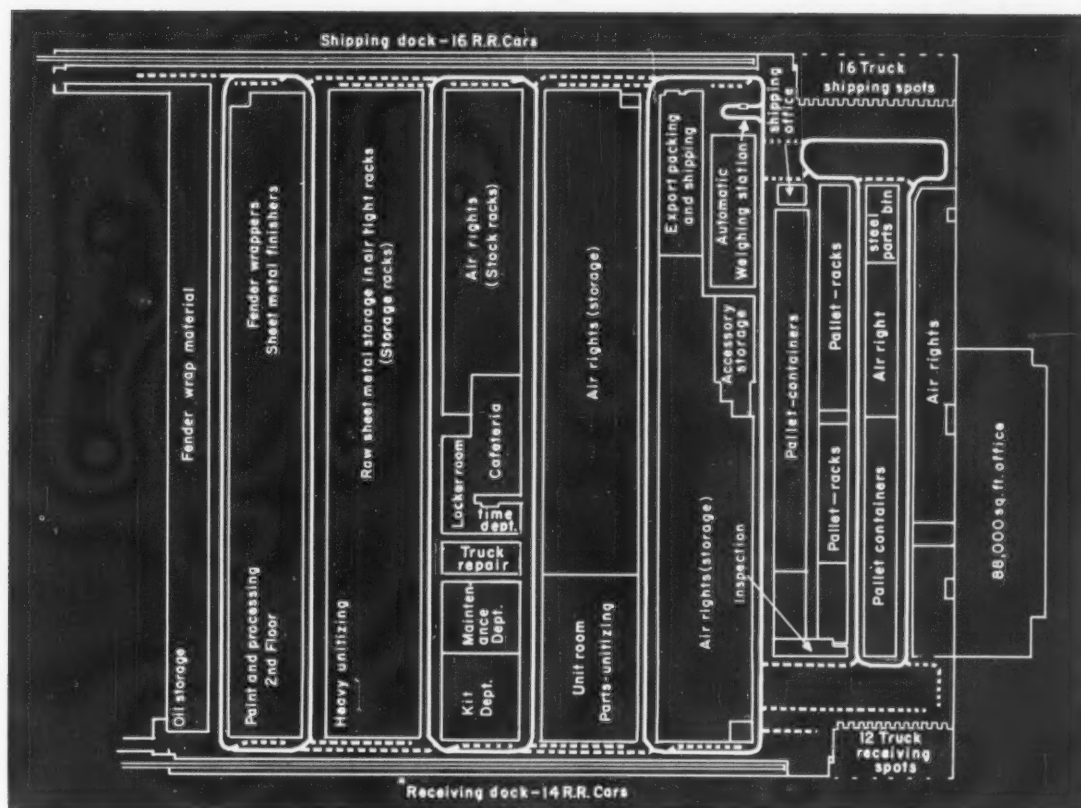
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*Would you like an extra copy of this article? As long as they last, one or two copies are available free, larger quantities at cost. Write: The Editor, MATERIAL HANDLING ENGINEERING.*

---

# Warehouse Speeds Parts Distribution

**Chevrolet's new parts distribution center is the largest warehouse under one roof in the U.S.**



FLOOR PLAN of new Otterburn warehouse. Note the 4 towline loops in the floor, indicated by heavy lines.

Spurs and transfers between loops are shown as dotted lines. There is a loop for every spot on the floor.

packaging materials as possible, as few different type containers as possible, as few pallet sizes as possible.

## Towline Is Heart of Handling:

The towline and trailer system is the major method of moving parts in the warehouse. There are four main loops to the in-floor towline, with transfers and kickoff spurs connecting them at shipping and receiving (see *flow diagram*). Each loop has seven stations, spaced so there's one near every heavy-traffic area. To send a trailer from one station to another, a worker

has only to dial the loop number and station number on a control panel on the front of each trailer, and couple it into the towline. It will follow the towline to the end of the loop it's on, transfer to the loop set on, the dial, then head for the station dialed by the shortest possible route. When it gets there it disengages itself from the towline, and stops. If another trailer gets in its path, it stops until the way is clear. And its sensitive bumper stops it immediately if a worker should get in the way, or if some obstruction

(Continued on page 132)

# Flow Change Doubles Plant Output

**GM's New Departure Division turns out more bearings, at a faster rate, all through a change in its handling methods.**

by Henry Lefer  
Eastern Editor



**CONVEYOR LINE** 80 feet long carries mixed cups and cones from bank of screw machines to cleaning and separating machines. This conveyor is loaded manually.

**YOU PICK UP A BEARING** and it looks simple. But it has passed through more than 50 stations between the time it entered the plant as raw material and the time it's packaged as a finished bearing.

To turn bearings out at the rate that American industry uses them—and at a price it's willing to pay—takes a lot of fast, automatic equipment. You've got to keep these machines loaded, working all the time, to get your money's worth out of them. And because there are many fabricating and inspection steps involved, you've got to move the material from machine to machine fast and economically.

That is what the Integrated Production Line was set up to do at GM's New Departure Division plant in Meriden, Conn.

This plant produces thousands of different sizes and types of bearings for automotive, aircraft, electric motor, and home appliance uses. Most of its orders are small, and because they're all different, it's impractical to set up a completely streamlined, continuous operation. They're just turned out in batches. Nobody has yet found a better way.

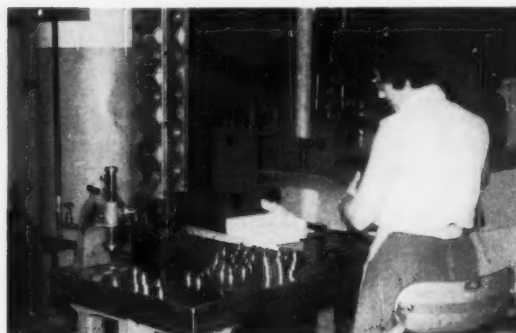
But New Departure's #3203 bearing series is another matter. It's sold in the millions, and in just a handful of easy-to-handle variations. It's ideal for continuous flow set-up. That's why the plant's engineers designed the Integrated Production Line.

The integrated production line uses the same basic machines that were used before to make these bearings—and are still used on short run production. The big change is in the handling of the flow material.

This change has resulted in considerable production improvement. It has slashed the lead time between order and delivery for this particular bearing. And it has reduced the number of in-process rejects.

Except for a couple of steps at the beginning and the end of production, the entire operation is mechanized, and to a large extent automatic. The raw bar stock and tubing comes to the plant on trucks. It's loaded manually in the automatic screw machines, one bank of which turns out cups (outer rings of

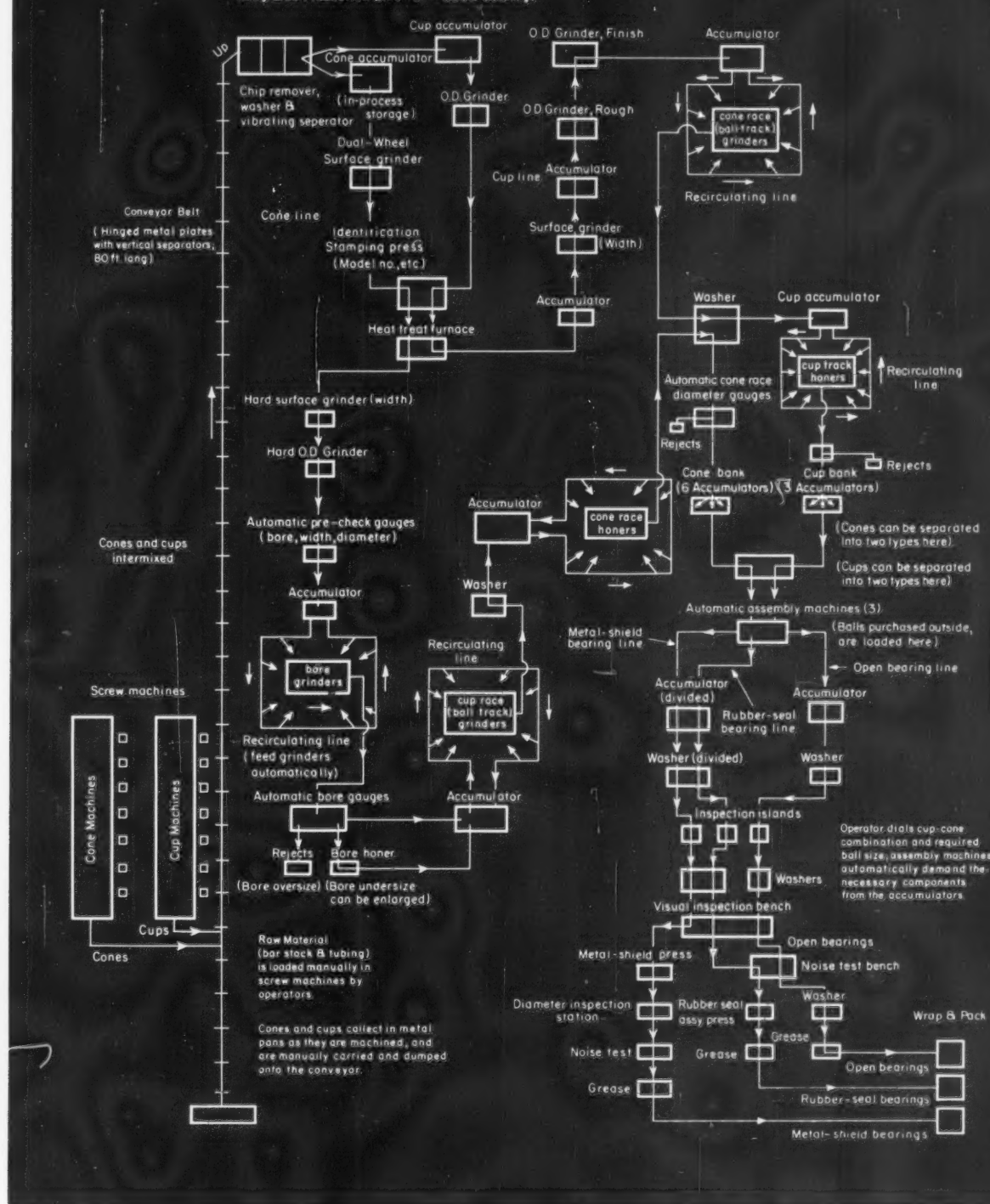
*(Continued on page 159)*



**FINAL OPERATION** for all three bearing lines as they leave greasing station, is wrapping and packing. There's a separate wrap and pack station for each line.



New Departure Div., G.M., Meriden (Conn.) Plant  
Integrated Production Line for #3203 Bearings



BEARING PLANT FLOW CHART. Recirculating lines are gravity tracks on which parts roll downhill in a complete circuit. Passing parts drop into feedline if

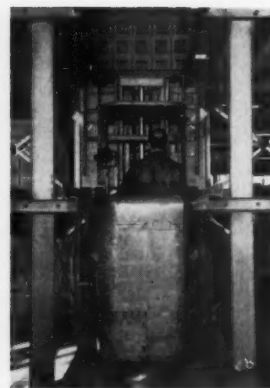
there's room, otherwise they continue to accumulator to be fed again from top of gravity loop. Vertical conveyors are bicycle chains with metal divider arms.



OVERALL view shows good space utilization. Narrow aisles and use of headspace adds 40 percent storage.



NARROW aisle trucks make a right angle turn in a six foot aisle. Company modified trucks for special safety.



50 percent floor space regained by . . .

## Drive-In Storage

By W. P. Moroney

Senior Engineer, Packaging & Material Handling  
Delco-Remy Division of General Motors Corp.

**W**E INCREASED our capacity for warehousing batteries by 40 percent without increasing floor space. Our system? We use specially designed drive-in storage racks and narrow-aisle fork trucks that can work in a 6-foot-wide space.

In 1956, we abandoned our long-time policy of storing batteries in 21 regional warehouses. We decided to store and ship directly from our four battery plants. That meant we had to find storage space in or near them. Only one had the capacity to store its finished products.

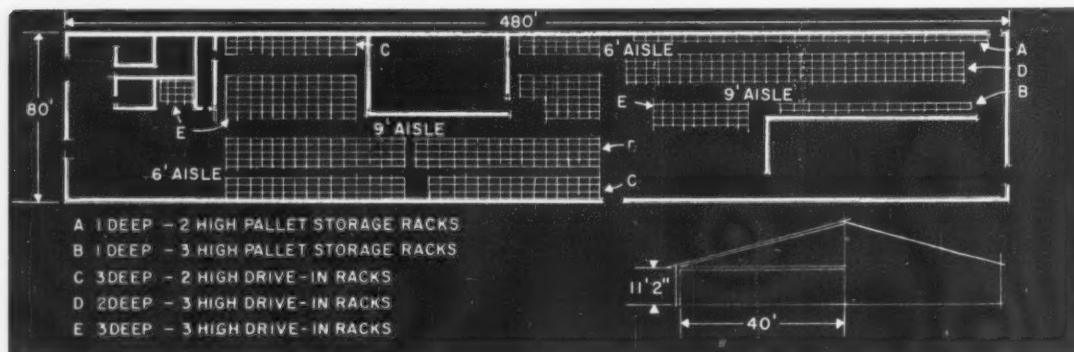
For the other three plants we bought warehouses. But this remote warehousing meant additional expense. Palletizing, banding, and extra, unavoidable damage to cartons (due to extra handling) were all expensive. And it was difficult to rotate the stock properly.

Meanwhile, plant engineering and material handling people were hunting a permanent solution. They realized that they'd have to introduce new ideas and especially some new methods of racking if they were going to fully use the space we had. Using conventional methods, we could stack only two pallets (10 batteries) high.

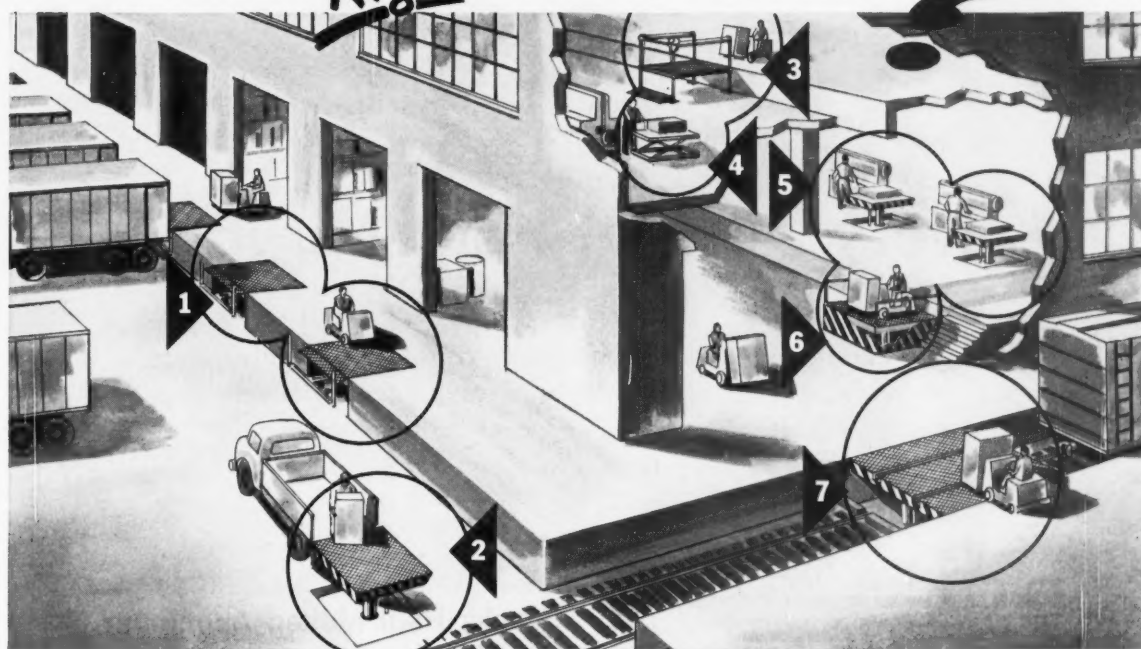
Our engineers put in a drive-in rack. It has open front. It supports each tier of batteries independently on double-faced wing pallets. Pallet wings rest on parallel-Z-sections cantilevered from supporting I-beam columns.

To load the rack, they recommended a narrow aisle fork truck. The truck would be able to drive right into the rack with a skid of batteries and place it on any tier in any position between the aisle and the rear wall.

(Continued on page 130)



# HOW MANY THINGS CAN YOU FIND *Right* IN THIS PICTURE



## Globe Lifts and Ramps are the right answers to every heavy lifting or loading operation

Every one of the circled areas in the picture above is the *right* answer to a particular handling operation such as you will find in plants and warehouses everywhere.

One of these lifts may fit into your picture. For example:

- (1) *Globe Trans-O-Matic® Dock Leveling Ramps* can be installed at any planned or existing dock. They provide a smooth passageway from the dock to the carrier—cutting loading or unloading time as much as 25% to 50%.
- (2) *Globe Platform OiLIFTS®* can be used anywhere, indoors or out, to raise heavy loads from ground level to carrier with smooth oil-

hydraulic power. Platform sizes, lifting capacities, controls, etc., to meet every handling condition.

- (3) *Globe Electro-Loaders®* are cutting man-hours of heavy handling jobs as much as 80%. Require no ground excavation. Available as portable units. Shown in picture above as a means of leveling off a split-level plant floor.
- (4) *Globe Table Lift*, a portable hydraulic powered scissor-arm lift, or
- (5) *Globe Machine Feed Table*, permanent oil-hydraulic platform lift installation keeps stock pile always level with machine bed for faster, more productive machine feeding with fewer fatigue-producing motions.
- (6) *Globe Ramp Eliminator* installed at split floor level saves waste space of long sloping inclines.
- (7) *Globe Bridge Lift* short-cuts vehicular traffic over sunken railroad spur tracks.

We will send you, free, a copy of the book "Case Studies in Modern Lifting" as well as detailed information and specifications on the Globe unit which applies to your needs.

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PROBLEM  
... AND MAIL THIS  
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## OiLIFTS

PLANTS: DES MOINES • PHILADELPHIA • LONG BEACH, CAL.

**WORLD'S MOST COMPLETE LINE OF INDUSTRIAL LIFTS AND RAMPS**

In the Big Three you'll find . . .

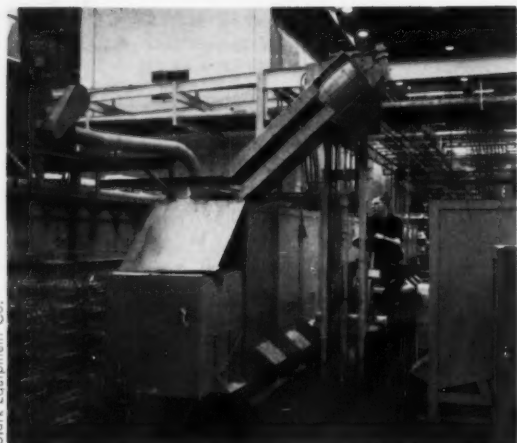
## Every Kind Of Handling Job

The automotive industry constantly reviews its handling methods in order to get the most savings out of every operation. Here are some cost-cutting techniques they've used to save time, money, material, and labor.



### Trucks Haul Molten Aluminum

Reynolds Metals Co. and Ford Motor Co. work together in extracting aluminum and manufacturing it into machinery parts. Reynolds' huge reduction plants send molten aluminum to the Ford casting plant in 500 pound transfer ladels. As illustrated, it is loaded onto a flat bed truck for the trip. At Ford it goes right into the big holding and alloying furnaces so that ingot casting and remelting are avoided. Currently Reynolds delivers 100,000 pounds per day, six days a week. A temperature loss of only about 100 degrees F results in the transport. At the casting plant, the alloy metal is poured into 60,000 pound capacity holding furnaces for final alloy and temperature adjustment. The Big Three are the only companies in the country that can afford this type operation.



Clark Equipment Co.

### Arms Dump Parts, Save Space

The Detroit Transmission Division of General Motors Corp. uses some 800 tons of small parts in its manufacturing process each month. Vast amounts of nuts, bolts, springs, washers and bushings are part of a finished assembly. They are received in kegs, wood boxes and cartons, and weigh from 200 to 250 pounds each. As production increases, storage space becomes a problem. The Material Control Department devised a chute-like set of arms that could be adapted to a 360 degree rotating clamp. They purchased a gas-powered Clark Clipper-2024 equipped with this attachment. As shown, the extended clamp arms allow dumping into the middle of storage hoppers. By side dumping, the truck needs only a 4-foot work aisle. The company reports savings of \$8,000 a year.

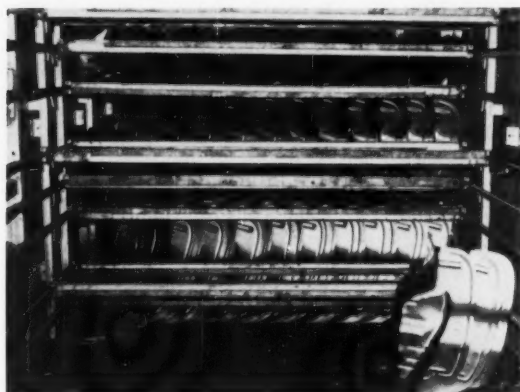




### Lift Handles Plate Glass Gently

One man stacks huge pieces of plate glass at Ford Company's Nashville Glass Plant. By vacuum lift, the 120-by-170 inch unfinished pieces are semi-automatically stacked for later grinding and polishing. Between 350 to 400 tons of plate and sheet glass are made daily. A 10-foot wide ribbon of glass 1,325 miles long

is drawn or rolled from the plant's two furnaces 24 hours each day of the year. It is processed into 40 shapes and sizes. Since furnaces are constantly in production, and faster processing lines only operate on a five-day basis, it is necessary to store some of the rough plate glass to keep lines filled.



### Load Pattern Stops Damages

Repetitive shipments of productive material from one Chrysler plant to another have undergone review in a company railroad car program. For example, a uniform load pattern is used in shipping fender shields. It has greatly increased the quantity shipped per box car with less damage. Company benefits in less freight, labor, and demurrage costs.



### More Parts In One Package

Chrysler Corporation used to ship heater blower motor assemblies one part per cell unit. Void areas resulted. Revised method shown places two parts per cell without damage. Less packaging is required, yet the number of parts per pack has been increased by 80. Package change came as a result of a special vendor packing program held by the company.

# HETTRICK... stitched canvas BELTS FOR EVERY USE

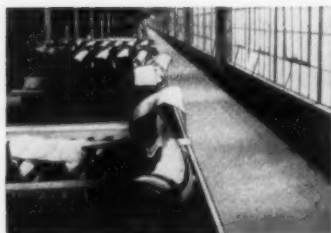
and  
**HETTRICK belts**  
**COST LESS**  
**WEAR LONGER**

Hettrick stitched canvas belts, treated and untreated, fit more than 80% of the belt requirements of industry.

Their original cost is less, they wear longer, and give better, lower-maintenance service.

From its complete line of 470 standard types and sizes Hettrick can supply you with belting that will meet the most rigid requirements.

Ask your Hettrick distributor, or write.



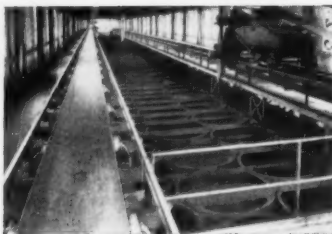
**PRICE** a requirement? This 48" "Malabar" belt has conveyed more automobile assembly parts for less money than any other belt. Low initial cost and low maintenance costs save money for Hettrick users.

**HETTRICK TOLEDO 1, OHIO**  
**66 YEARS OF PROGRESSIVE LEADERSHIP**

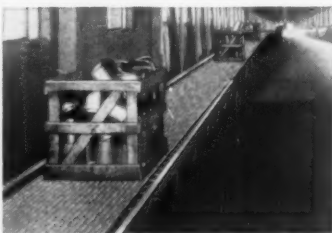
Circle 94 on Reader Service Card for more information



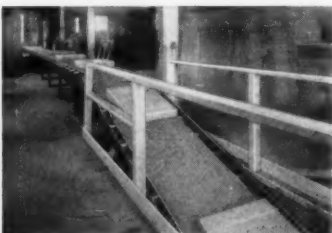
**STRAIN OR STRESS** a problem? Hettrick belts will stand up longer, will not deteriorate with age.



**HEAT** a factor? This "3-M Special" operating under oil saturated conditions with temperatures up to 300° F. has lasted three times longer than other types of belting and is still in service.



**OIL OR ABRASIVES** cutting belt life? Operating under excessive oil and abrasive conditions this belt has been in operation over five years and is still going strong.



**SERVICE** essential? This package conveyor has been moving heavy materials from first to third floors for over four years. It's good for ten more.

## MATERIAL HANDLING— FORD'S TOP ASSEMBLY WORKER

(Continued from page 93)

shelves; as the worker empties a shelf of parts, he folds it back like the leaves of a book.

There are four main scheduling sections. An overhead conveyor circles through them, carrying a double-faced rack that holds two complete sets of transmission components. The components will be matched with transmission cases in final assembly.

### Handling the Transmission Case

Cases are made of aluminum alloy, are machined in an automated transfer device. From there they travel by powered roller conveyor through washing and test. The plant is set up to handle 2000 cases in an 8-hour shift. A conveyor with two-tiered racks takes the roller through a second washing to a marking station. A worker removes the cases from the racks, stamps model and serial numbers on them. Then he clamps them onto carriers attached to a conveyor at the opposite side of the work station.

These carriers have handles which rotate the cases in any direction so that parts can be assembled into them from all angles. Carriers also have mechanical selectors which the operator presses to indicate different models. They are attached to an overhead, power-and-free conveyor.

### Live Storage Section

The conveyor loops back and forth at a high level over a large area to form a live storage section of transmission cases. The conveyor chain tows the carriers, spaced at intervals, to the storage section and releases them. A spring-loaded dog on the conveyor chain catches the top of the carrier, pushes it, and releases. The carriers are shoved along the rail close together to save space.

The double-faced fixtures which hold transmission components travel a route similar to that of the case conveyor. They too are live-stored in a conveyor bank, mechanically flagged by model. Everything is ready for the final

# Fibre Box Competition Winners

**E**IGHTEEN gold prizes have been awarded to box manufacturers for first prize entries in the Fifth Fibre Box Competition, sponsored by the Fibre Box Association. There were 575 entries, representing the latest developments in the fibre box industry. In addition to the gold prizes, there were silver and bronze awards for runner-up entries.

The awards were in each of 12 end use categories and 6 special classes.

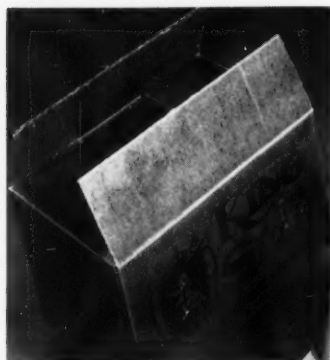
The end use categories are: Fresh fruits and vege-

tables; Meat, poultry and eggs; Other food products; Textiles and wearing apparel; High density products; Small appliances; Medium appliances; Large appliances; Furniture and house furnishings; Floor stands; Display-shipping containers; and Other products.

The six special categories are: Articles made from corrugated or solid fibreboard; Inner packing and Inner containers; Distinctive features; Carry-home packs; Palletized products, unitized loads, and bulk loads; and Surface design and printing.

## Gold Award Winners:

*Fresh fruits and vegetables—*Boxmaker: Hinde & Dauch. Customer: Royal Packing Co. Product: green onions. Box is made of waterproof corrugated board, with vent and drainage slots, for shipping four dozen bunches of green onions topped with ice.



*Meat, poultry, and eggs—*Boxmaker: Stone Container Corp. Customer: Wm. Schludenberg-T.



J. Kurdle Co. Product: poultry. Box is made of impregnated corrugated board to hold 30 pounds of cut-up chicken topped with ice.

*Other food products —* Boxmaker: Container Corporation of America. Customer: Foremost Dairy. Product: milk. A corrugated shipping container with plastic bag innerliner for milk and other bulk fluids. Dispensing tube at bottom. Capacity 5 gallons.

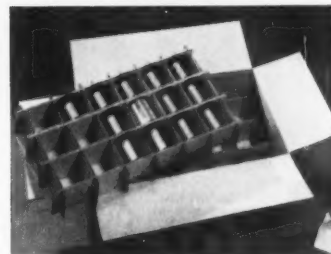


*High density products —* Boxmaker: Mead Containers, Inc. Customer: Sterling Bolt Co. Product: Nails, nuts, and bolts. One-piece key-type box made of 275-lb test corrugated. Die-cut design gives two thicknesses on sides,

four on bottom, five on top. Reclosable lid doubles as pouring spout. Greaseproof inside.



*Textiles and wearing apparel—*Boxmaker: Continental Can Co., Inc. Customer: Metlon Corp. Product: metallic thread. Corrugated box with separators fixed to a flat sheet, doubles as shipping container and in-plant tote box.



(Continued on page 142)



#### CM METEOR Electric Wire Rope Hoist

½ to 5 ton capacities—Compact, enclosed design. Low headroom. Continuous hoist-duty motor with thermal overload protection for heavy duty service. Precision bearings and helical gears for long life. Only 110 volts at push button control.

## CM HOISTS

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REPETITIVE PRODUCTION  
APPLICATIONS OR  
RUGGED MAINTENANCE  
WORK



#### HAND or ELECTRIC—CHAIN or WIRE ROPE

CM makes them all! So you can choose a hoist that's perfectly suited to your own needs in a safe, highly efficient CM design. Three of the most popular models are illustrated. Specifications of other types and sizes on request.

#### CM LODESTAR Electric Chain Hoist

¼ to 2 ton capacities—First truly heavy duty version of small electric hoist. ¼ ton model weighs only 51 lbs. Heavy duty self-adjusting mechanical brake and regenerative electrical braking. Overload protection and upper-lower safety switches. CM-Alloy load chain.

#### CM CYCLONE Hand Chain Hoist

¼ to 10 ton capacities—Easy to carry and lift. One ton model weighs only 36 pounds. Made of tough aluminum alloy. CM-Alloy load chain. High efficiency. Lifetime lubrication.

ALSO  
CM Pullers,  
Trolleys  
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### CHISHOLM-MOORE HOIST DIVISION

COLUMBUS MCKINNON CHAIN CORPORATION

TONAWANDA, NEW YORK

REGIONAL OFFICES: NEW YORK, CHICAGO, CLEVELAND

In Canada: MCKINNON COLUMBUS CHAIN LIMITED, ST. CATHARINES, ONTARIO

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### MATERIAL HANDLING— FORD'S TOP ASSEMBLY WORKER

(Continued)

operation—pushbutton scheduling of final assembly.

#### Final Assembly

Near the final assembly lines is a master control board for all conveyors in the plant. Its purpose is to (a) program the final assembly line; (b) provide an instantaneous inventory of cases and parts in live storage; and (c) indicate any breakdown of the conveyor lines.

Here's how the operation ties together. Counters on the storage conveyor lines tell the control board how many cases and sets of components are on hand. The operator sets controls for (a) the model designation of the transmission to be assembled and (b) the number of units wanted.

#### Automatic Shunter

A switch on the conveyor line automatically shunts off the right cases and racks of components onto sections of the line which lead to final assembly. Cases come down and travel along four assembly lines while the parts racks travel along two conveyors running between the case lines. Using the case's rotating fixture as a work table, the assemblers take parts from the moving racks and install them on the corresponding case. When the transmission reaches the end of the line, it has been completely assembled, and the parts rack is empty.

#### Final Testing

A collection conveyor picks off the finished assemblies and takes them to final test. The transmissions circulate over the test stands until each one is lowered by elevator into a stand. After the transmission has been attached to an engine and drive-tested, it is raised by the elevator and conveyed to the button-up line. The oil pan and fittings are added and the transmission is tested again. Next it is conveyed to shipping and lowered into rack-containers holding 8 units. The racks are designed to make the best use of truck space when shipped.

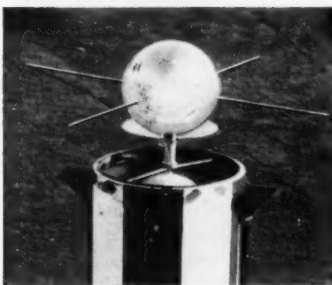


## IMPORTANT DESIGN ADVANCES . . .

# IMPROVED DOCKBOARDS NOW MADE BY LARGEST MAGNESIUM FABRICATOR IN U. S.

In June, 1958, Brooks & Perkins introduced a line of improved design magnesium dockboards. A pioneer fabricator of magnesium assemblies for military aircraft, missiles, electronics, and communications systems, the company is the largest fabricator of magnesium assemblies in the U. S.

B & P manufactured the Vanguard Earth Satellite, the tail cone for the B-47 Bomber, the gun turret enclosures for the mammoth B-36 Bomber, the vertical plotting equipment for Continental Air Defense, the new Lockheed Electra Propeller Spinners, jet pods, radar reflectors, aerial delivery platforms, Signal Corps teleprinter covers, and thousands of other assemblies used in aircraft and missiles.



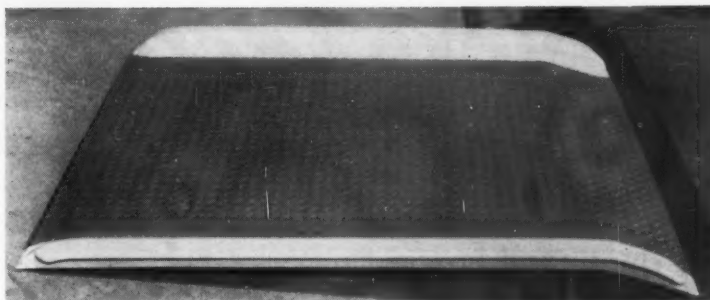
Earth satellite's magnesium shell is typical of B & P's skill in fabrication.

B & P also operates the second largest magnesium rolling mill in the U. S. and supplies sheet and plate to hundreds of users; was the first producer in the world of Boral for



Magnesium tail cone and gun turret enclosure for B-47 Bomber.

neutron shielding; was the first company to hot, deep draw parts from titanium; and the first company to hot, deep draw zirconium sheet.



The company also makes magnesium photo-engravers metal and back-up plate for the newspaper and graphic art industry.

Brooks & Perkins and Calumet & Hecla jointly own the subsidiary



Kleinschmidt teleprinter on pack board and set up.



Magnesium aerial delivery platform developed and built by B & P.

Alabama Metallurgical Corp., now constructing a primary magnesium production plant in Selma, Alabama. When this is in production by August, Alabama Metallurgical Corp. will be the second U. S. commercial producer of magnesium.

## B & P DOCKBOARDS GIVE EXTRA VALUE

Users of B & P dockboards are assured of extra values which result in stronger, safer dockboards with longer life.

The greatest dockboard improvement in years is the **B & P one-piece extruded curb with forged ends**. Other important extra values include: curbs with **full length hand grips** for safer, easier handling. Faster, safer movement of lift trucks over the boards is assured by **yellow curb markings**.

All B & P boards are **arc-welded with argon-shielded consumable electrode** for better weld penetration and highest strength. Every dockboard is **heat treated after welding for stress-relief** to eliminate stress cracking in service.

These plus values and the fact that all B & P dockboards are strong, light magnesium made by the largest and one of the oldest magnesium fabricators in the country, guarantee extra value for every dollar spent.

B & P has for several years made magnesium hand trucks of superior design and workmanship; also other non-powered floor trucks of all types.



Write for B & P Dockboard Brochure.

MH-22

## BROOKS & PERKINS INC.

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# MODERNIZE with

America's most Modern Truck . . .

## Hydro~~Electric~~

A GREAT NAME IN LIFT TRUCKS

**Featuring the exclusive  
Dyna Dual Power Unit  
that is interchangeable  
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**PUT THESE MODERN FEATURES TO WORK  
GREATER PROFITS AT NO ADDITIONAL COST**

- Two driving wheels instead of one
- Braking with handle in any position
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- Sealed alloy gears instead of chains
- Sealed ball-bearing rollers in masts
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- Power unit removal complete in 20 minutes
- Greater tire capacity equivalent load ratings

**Write for Bulletin K H L**



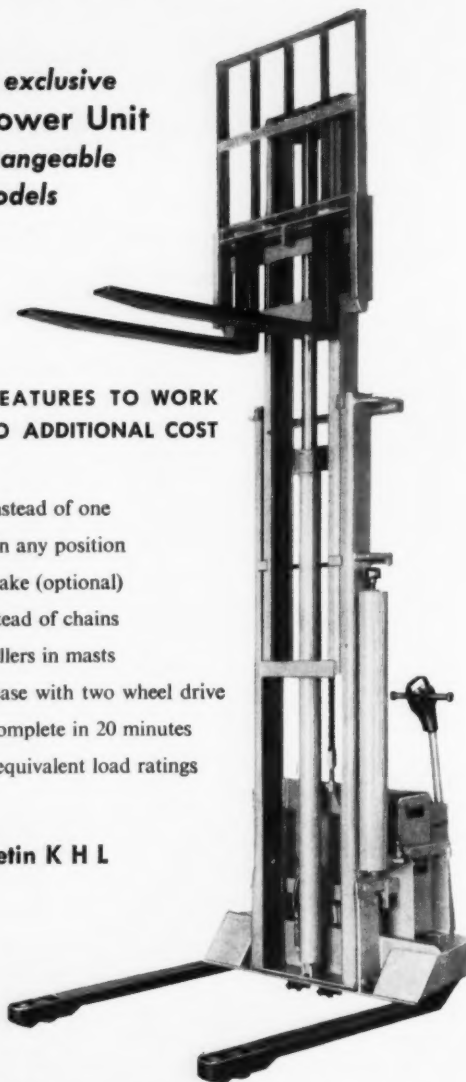
2419 Spring Grove Avenue

**A TRUCK FOR EVERY PURPOSE AND MATERIAL**



**LIFT TRUCKS, INC.**

CINCINNATI 14, OHIO



### PLAN TO UNLOAD CARS BEFORE THEY'RE LOADED . . .

(Continued from page 95)

tops and miscellaneous metal.

*Permanent dunnage* cars have perforated side walls into which cross-bars can be fitted. They are used similarly to dunnage free cars with the arrangement of cross-bars varying to fit material being carried.

*Common rail cars* are often equipped, at Ford expense, with special slots or perforations. Prefabricated wooden dunnage fits into the holes to divide cars into sections. They serve as multiple-trip dunnage cars and are used on consistent short term movements and during abnormal production periods. For example, parts for the convertible coupe model are often shipped in multiple-trip wood dunnage cars during the spring season when production on this model is greatest.

Some material comes to the Lorain plant in unit loads. Some in less than unit loads, but in proper components to be built into unit loads. Thus, all parts can be moved to storage and up to the assembly lines in standard size loads on standard equipment.

Normally, material is unloaded from cars by fork truck. It is transferred into in-plant racks on the dock. The loaded racks are moved to the warehouse by tractor-trailer trains. Lift trucks put them into storage and remove them again when parts are needed on the assembly line.

Not all manual handling has been eliminated. Some items, like fenders, are removed from cars one-by-one, by hand. Much of the handling of parts on the assembly line is manual.

At first glance, this would look like a classic oversight by Ford's material handling perfectionists. But it isn't. Through cost studies, they have found that you can't always improve on manual handling, even on a mass production line.

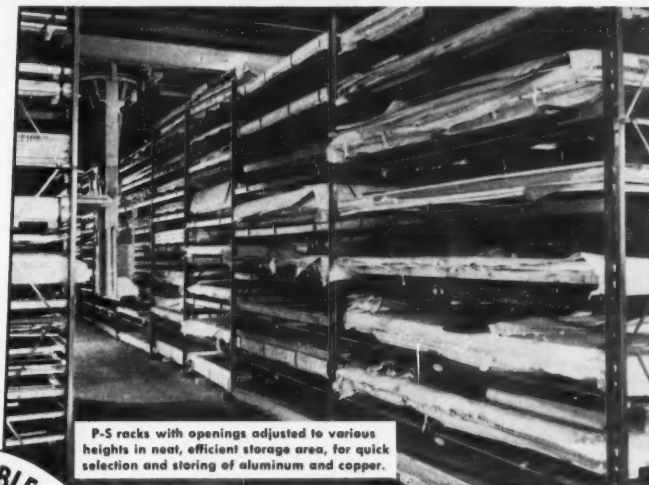
Their aim is not to simply take the manual handling out of automobile production, but rather to eliminate all fatiguing jobs. As a result, you don't see any tugging of loads or handling of heavy items onto stacks at the Lorain Assembly Plant.

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# FROM ONE SOURCE...Racks to Fit Every Need...



P-S Bar Racks insure easier handling of pipe and tubing, save floor space while storing more stock tonnage.



P-S racks with openings adjusted to various heights in neat, efficient storage area, for quick selection and storing of aluminum and copper.

**Safe • Economical  
Portable Heavy Duty**

## BAR RACKS

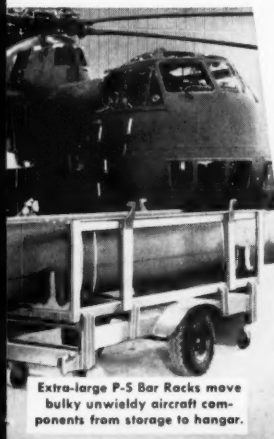
For HANDLING, TIERING and STORING  
Efficiency and Stock SELECTION Convenience



**Versatile • Low Cost**

## STORAGE RACKS

For Any Storage Area  
ONLY 2 PARTS To Assemble



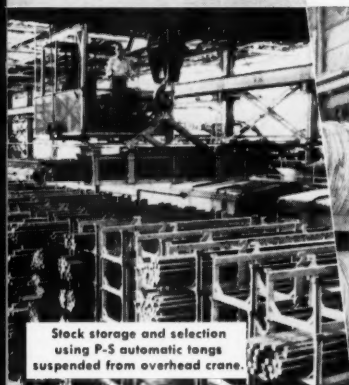
Extra-large P-S Bar Racks move bulky unwieldy aircraft components from storage to hangar.

Designed to save valuable floor space, to tier safely to any height with P-S automatic tongs suspended from overhead crane, for simple stock storage and selection. An indispensable aid to maximum production efficiency. Engineered to suit your exact requirements.

Used for any application, inside or outside, to store light or heavy materials of various sizes to any height. Adaptable to any storage area for use in single, double or multiple sections. Simple snap-in assembly to slots on vertical panels gives safe, rigid, no-sway support. Engineered to your specifications.



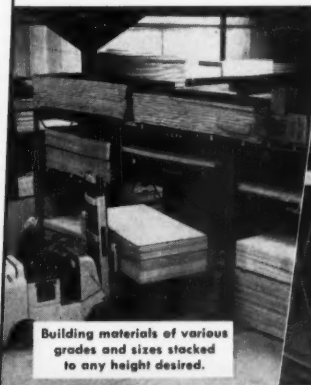
Efficient storing of valves in P-S racks for quick, easy selection.



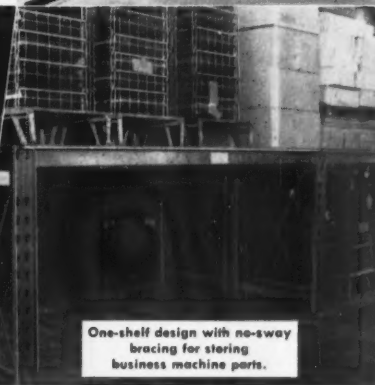
Stock storage and selection using P-S automatic tongs suspended from overhead crane.



P-S portable heavy duty coil and bar racks with automatic tongs for storing coils.



Building materials of various grades and sizes stacked to any height desired.



One-shelf design with no-sway bracing for storing business machine parts.

144 Old Colony Ave., BOSTON 27, Mass.,  
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BURLINGAME, Calif., Diamond 2-0823 • 15  
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DESIGNED AND MANUFACTURED BY

**Palmer Shile Co.**

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# SOFTTEST-RIDING... BIGGEST-SAVING!



**Get 5½ times more cushioning—plus longer wear—with the great U. S. Royal Innacush!**



*Best way known to cushion your drivers, loads, vehicles from bump and shock—that's the U. S. Royal Innacush®. The only successful two-stock construction—tough and cut-resistant outside, soft and shock-absorbent inside. It soaks up 575% more impact. It actually doubles wear life, gives you the biggest money savings in industrial tires. Protects floors. Why settle for less? Always buy and specify U. S. Royal!*

Available in pressed-on or demountable type.

Write W. J. Shalley, Industrial Tire Dept., for complete industrial tire manual.

## U.S. ROYAL TIRES



**United States Rubber**

Rockefeller Center, New York 20, N. Y. • In Canada: Dominion Rubber Co., Ltd.

## DRIVE-IN STORAGE . . . (Continued from page 120)

We found a truck capable of raising a 4000-pound skid of batteries 125 inches. To meet our safety standards, we modified the truck for our system.

Heavy steel guards were placed on the back and right side as protection for the operator when backing out of the rack. A guard was installed to hold the operator's foot inside the truck. The steering wheel was moved up, and to the center for easier maneuvering.

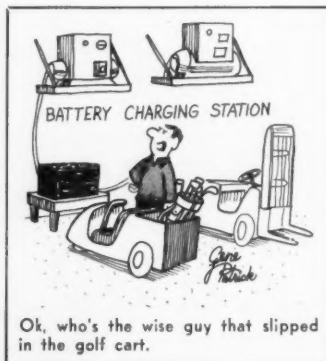
A special 48 over 40 double faced winged pallet with clearance under the wings deep enough to take the straddle arms of the truck supports the load between the Z-sections of the rack.

The truck we now use can work in a 6-foot aisle. Our old one needed a 12-foot aisle to make a right-angle turn with a skid of batteries.

The changes enabled us to get rid of all the outside warehouses. We now store 40 percent more batteries and we store them right in the plants. The extra storage space we used to use at one plant has been returned to production.

A definite rack location in the order-picking department is assigned to each of over 160 models of batteries kept in stock. This, combined with our selectivity, saves hundreds of hours of labor on the part of order pickers, stock replenishers, and truck drivers.

We have recovered 50 percent of space formerly used for aisles. And in addition, we improved our safety and housekeeping. We damage significantly less stock and have simplified stock rotation and inventory control.



Ok, who's the wise guy that slipped in the golf cart.



A new standard to meet the demand of industry...



# 458 CHAIN CONVEYORS



## R-W 458 TROLLEYS OFFER MANY OUTSTANDING FEATURES

These important advantages, designed to assure dependable, trouble-free service, are as follows . . . **TRIPLE LABYRINTH SEAL**, lock-out dust and dirt, retains lubrication . . . **PROTECTED ALEMITE FITTING**, placed "out-of-the-way," cannot be knocked off . . . **BALL RETAINER**, minimizes ball wear, traps lubricating grease and prevents churning . . . **SWAGED WHEEL** and **SIDE ARM CONNECTION**, eliminates wheel loosening as occurs in old fashioned nut and bolt connections . . . **OUTER RACE OF WHEELS MACHINED** and **HEAT TREATED** for long-life service . . . **DESIGNED TO PROVIDE MAXIMUM LOAD CAPACITY.**

YOU ARE CORDIALLY INVITED to visit with us during The Material Handling Institutes Exposition of 1959. See us in Booth 1414 on the lower level of the Cleveland Public Auditorium, June 9-12.

R-W 458 Chain Conveyors provide an important addition to the present line of R-W overhead conveying systems . . . in fact, this addition permits R-W to offer the most complete line of overhead conveying systems available. All are designed and planned to increase production efficiency, lower operating costs and provide a profit-improvement. R-W 458 Chain Conveyors are easy and economical to install, operate and maintain . . . may be added on to existing systems as track and components are manufactured to meet industry standards of size. R-W track and components offer the additional advantage of being designed and manufactured to meet R-W's strict quality control standards . . . standards that are set up to assure you of receiving dependable, long-life service and trouble-free operation with minimum maintenance.

Whatever your conveying problem — from basic systems to intricate automatic dispatch systems there is an R-W overhead conveying system to meet your exact requirements. Write today or contact your local R-W Sales Engineer for complete information.

WRITE TODAY . . . REQUEST YOUR FREE COPY OF CATALOG A-570



## Richards-Wilcox

MANUFACTURING COMPANY

"MATERIAL HANDLING DIVISION"

420 W. THIRD ST. • AURORA, ILL. • Branches in all principal cities

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JUNE, 1959

131

# Caradco Revamps Plant

Uses space more effectively for storage of high volume products.

## Walkie Worklifter

### Saves Aisle Space

As a major supplier of doors, windows and cabinets for new houses, Caradco has been pressed by increasing sales volume to make more effective use of floor area.

With racks and Walkie trucks, they now stack shipping cartons, finished cabinets and parts to ceiling height. More floor space is available for production.

If bigger volume is crowding your floors, remember: No Other Powered Truck Saves Floor Space Like a Walkie Worklifter.



**CARADCO**  
INCORPORATED  
FOUNDED 1909

Economy Engineering Co.  
4501 W. Lake Street  
Chicago 24, Illinois

Dear Mr. Rhodes:

When we undertook to revise the layout of our cabinet department, it was immediately evident that we had to come up with a new method of storing and handling our flat corrugated carton stock, and the various wood cabinet components.

The spacing of columns in the area were such that if we were to consider a lift truck, it had to be one that would operate in a seven foot aisle. After investigating all available trucks that would meet this requirement, and still be in a price range that we could justify, we decided on your Walkie-Worklifter. This truck proved itself right from the start, and not long after, we ordered a second unit.

Both of these Walkie-Worklifters are doing a real job for us, and as we revamp other areas in our plant, we are planning on more of these job designed trucks to solve our storage and handling problems.

Very truly yours,  
CARADCO, Inc.

*John A. Templer*  
John A. Templer  
Plant Engineering Manager



BILT WELL LINE WINDOW UNITS — Double hung Casement, Awning and Burmese — DOORS — Exterior Interior Sills and Combination CABINETS — Kitchen Storage Wardrobe Vanity Laundry, etc.



Battery powered lifter and transporter in high lift fork and platform models. Capacities 1000 lbs. to 2000 lbs. Lifting range 58" to 120". Write for catalog.

Write for detailed information

**ECONOMY**  
**ENGINEERING**

Designers and manufacturers of lifters since 1901

4524 West Lake Street, Chicago 24, Illinois

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## ULTRA-MODERN WAREHOUSE SPEEDS PARTS DISTRIBUTION

(Continued from page 117)

blocks it. Speed is variable, but the trailers usually move at 100 feet a minute.

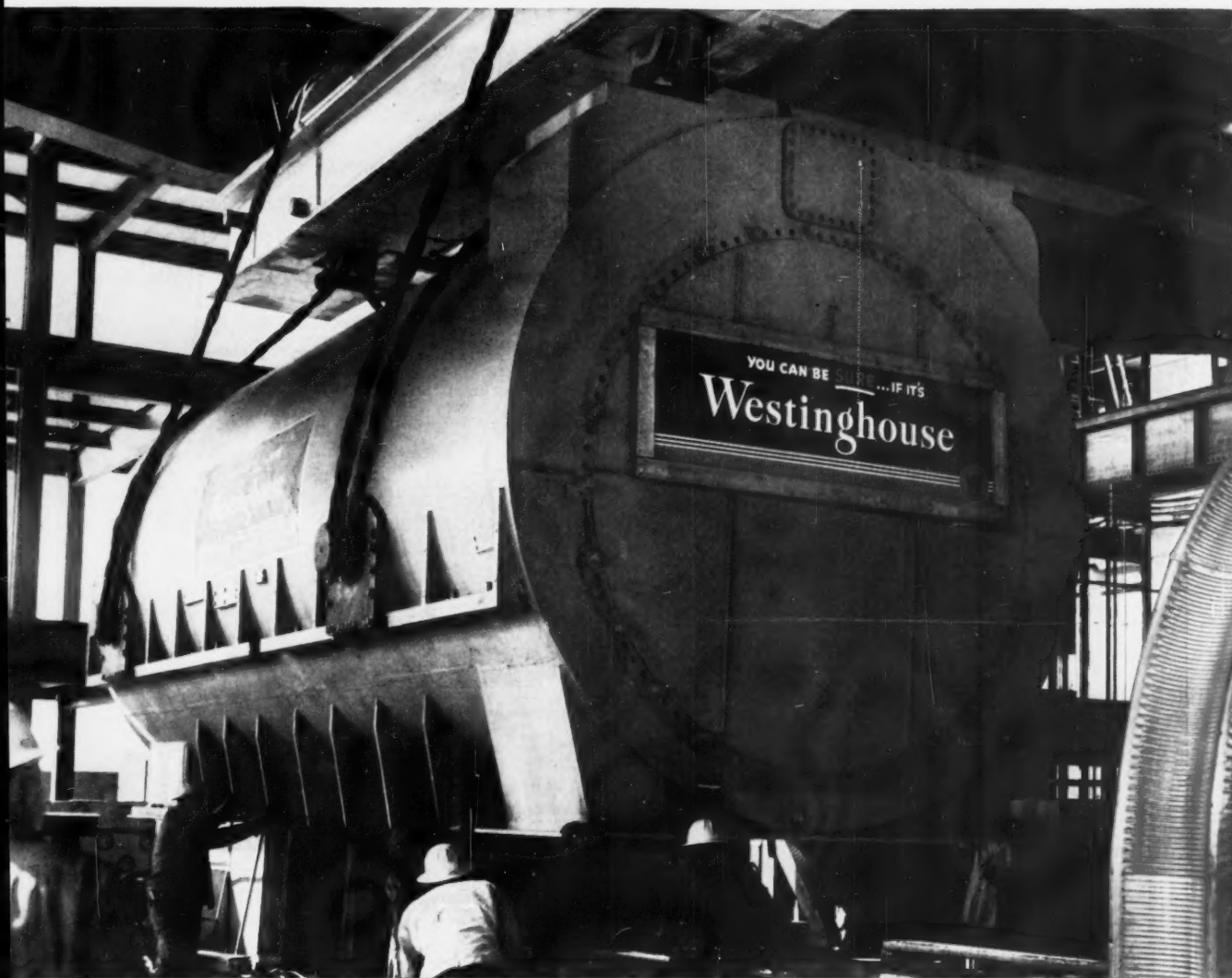
All parts—both inbound and outbound—move between bin areas and docks on these trailers. Some of the trailers have flat beds to hold pallets or pallet boxes. Others have special racks for sheet metal parts or odd shapes.

Flow of parts is controlled by IBM electronic data processing equipment. Regional warehouses order parts on the basis of forecast needs. As their orders come in, keypunch operators transfer all the information onto punch cards. The IBM equipment then automatically prepares the stock picker's order sheet, invoice, bill of lading, inventory adjustment, and other control forms. Even for the 46,000 slow moving parts kept in other warehouses, the IBM control work is done here.

Every year, model changes mean changes in replacement parts packaging. New containers, new cushioning, new specifications. A large part of the warehouse is devoted to service parts packaging. Windshields and sheet metal parts are the toughest to package. But smaller parts need packaging too. And there are so many of them going out that it takes a large staff of workers to keep up with the pace.

With over a million pounds going out daily in domestic shipments, and another two million a month overseas, the right shipping methods are important. Parts go out by every conceivable carrier—rail, motor freight, express, parcel post, air freight. Most of them go in palletized loads. Engineers have settled on two pallet sizes for shipping: 32" x 32" and 32" x 40". For rail cars they go three across on the 32" dimension. For trucks they go two across on the 40" dimension. Most of the pallets are wirebound wood, but about a quarter of them (200 to 300 a day) are expendable, made of corrugated board. These are used mostly for light loads, up to about 300 pounds.

## Tiger Brand — America's No. 1 Wire Rope



### Westinghouse Can Be Sure because those are Tiger Slings

The generator stator plus lifting beam weighs 297 tons. It was built by Westinghouse Electric Corporation and delivered to the Thos. H. Allen Electric Generating Station in Memphis, Tennessee.

They couldn't take chances when they unloaded this mammoth power package from the railroad car, so they lifted it with Tiger Braided 8-Part Slings. Each of the eight parts is a 1" diameter Monitor Improved Plow Steel Wire Rope, and each is Tiger Brand—America's No. 1 Wire Rope. Four of the ropes are Right Regular Lay, and four are Left Regular Lay. They are braided in pairs so that Right Lay and Left Lay pairs are opposite each other. This reduces the tendency of the sling to kink or rotate under load.

American Steel & Wire makes a complete line of slings and fittings for all industrial applications. And if you need a special sling for a particular job, just give us the details.

For more information write to American Steel & Wire, Dept. 9101, 614 Superior Ave., N.W., Cleveland 13, Ohio.

*USS and Tiger Brand are registered trademarks*

#### Why Tiger Brand is your best buy

1. It is made by a company that maintains the most complete wire rope research and manufacturing facilities in the country.
2. It is designed by one of the country's most capable staffs of wire rope engineers. It is serviced by thoroughly experienced field representatives always ready with their assistance.
3. Every type of Tiger Brand Wire Rope is designed for specific applications. *You get the right rope for the job.*
4. It is made by one company, U. S. Steel, and every step of production from ore to finished product is carefully controlled and supervised to guarantee one high standard of quality.
5. Tiger Brand Wire Rope is manufactured by the largest single producer in the country.



**American Steel & Wire  
Division of  
United States Steel**

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors  
Tennessee Coal & Iron Division, Fairfield, Alabama, Southern Distributors  
United States Steel Export Company, Distributors Abroad

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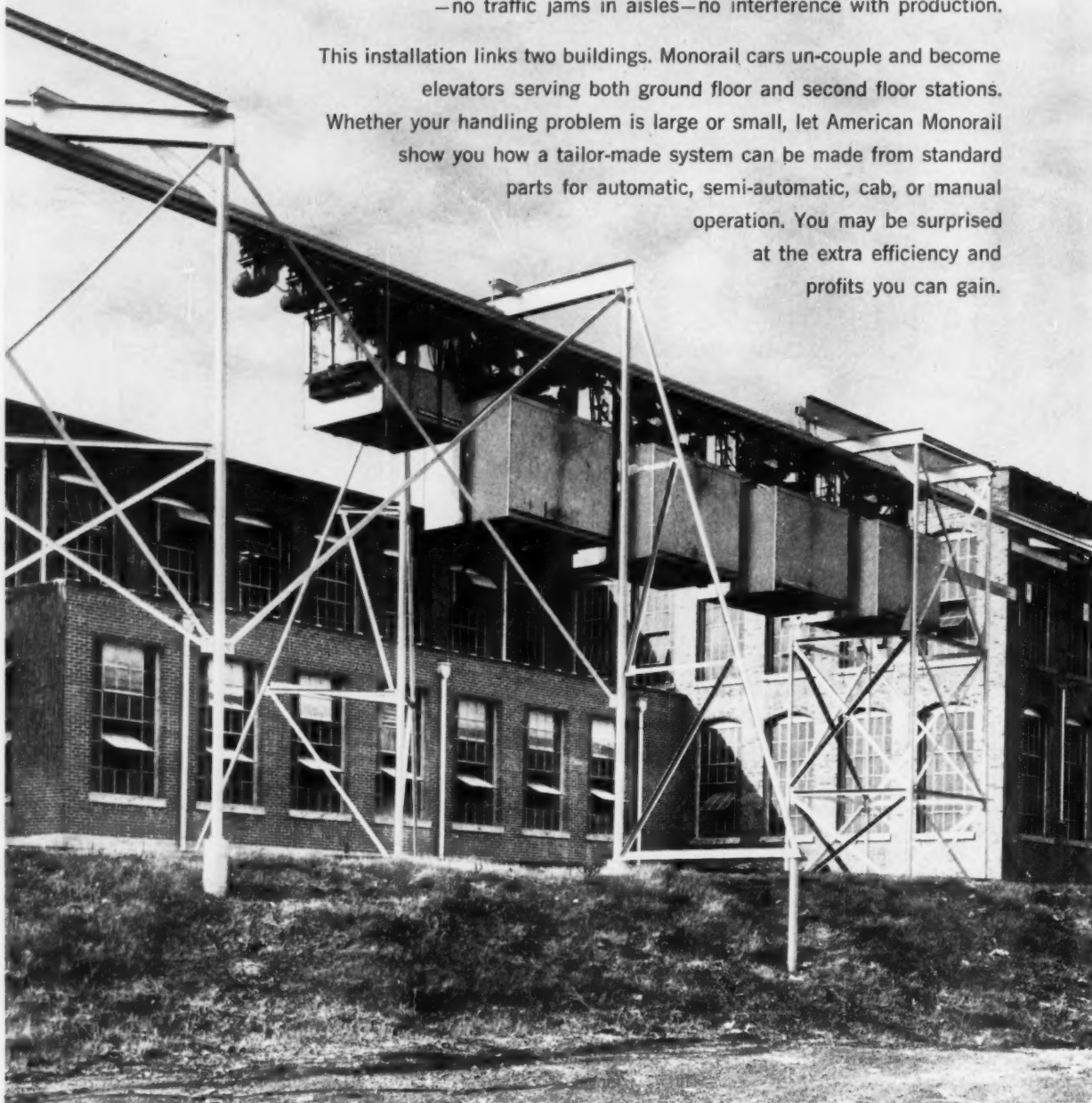


# TOUGH HANDLING

***made easy.....*** Transport by American Monorail solves

handling problems outdoors or indoors. Methods and equipment are expertly engineered. Loads move safely overhead—no traffic jams in aisles—no interference with production.

This installation links two buildings. Monorail cars un-couple and become elevators serving both ground floor and second floor stations. Whether your handling problem is large or small, let American Monorail show you how a tailor-made system can be made from standard parts for automatic, semi-automatic, cab, or manual operation. You may be surprised at the extra efficiency and profits you can gain.



MEMBER OF MATERIAL HANDLING INSTITUTE AND MONORAIL MANUFACTURERS ASSOCIATION

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## PRECISION HANDLING IS THE KEY TO AUTO ASSEMBLY . . .

(Continued from page 115)

Chevrolet bodies come into the two-story assembly plant upstairs, in a continuous line. They pass through an in-process storage pool where 225 bodies, punch-card order form attached, stand in reserve ready to enter the assembly line. This pool acts as a bank account. Should production be interrupted at Fisher Body, there are enough bodies in the pool to keep the assembly line running for several hours.

As each body leaves the pool, it passes through an IBM station where the order form is fed into a computer, which flashes the order to each of the 22 assembly stations ahead. A little over an hour from that point, the car will be completed and driven away.

### Small Lines Feed Main Assembly:

The IBM message that flashes to the 22 stations tells each one exactly what's coming—what they

must have ready for that car. Each of these stations is a sub-assembly line that feeds into the main line. If one order calls for a white Impala Sport Sedan, for example, and the next one calls for a red Biscayne 4-Door Sedan, a white then a red hood must come off the sub-assembly line for hoods at the precise moment these cars pass by. At the point where wheels are put on the chassis, a set of five white wheels must come to the line at the right time, followed by the red wheels for the car behind. And each must have the exact tires the customer specified.

So it is for each of the many parts that go into the car. Motor, transmission, accessories — all must be exactly what the customer ordered. That's why coordination is such an important part of material handling here. Chances are that a certain part was assembled or taken from storage at the opposite end of the plant. But each one must be split-second timed to hit a main assembly line just as the right car goes by. The sub-assembly lines all rely on that one IBM signal to tell them what to

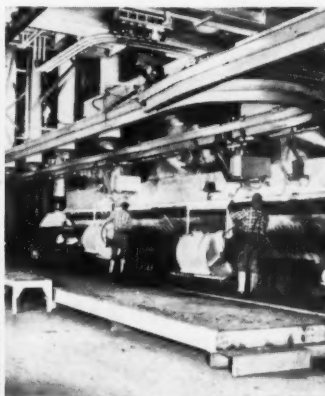
produce, and when to start producing it.

Once the IBM signal has gone out, the bodies roll along the trim line, still upstairs. Here radio, heater, instruments, etc. go on. The bodies ride along a chain-driven conveyor, but most of the other handling here is by lift truck. Parts are stacked on pallets, or in wire pallet boxes, right next to the line. As they're used, the lift trucks keep the supply replenished from storage.

While the trim is being put on upstairs, activity is now beginning on that car downstairs too. On the frame line immediately below, the chassis for that car has started to take shape. The specified motor joins it from the motor line, then the transmission, rear axle, etc. Wheels, the right color and with the right tires, go on a little further down the line. Most of these parts come to the line on overhead conveyors or monorails.

In this way the two basic parts of the car progress, the frame downstairs, the body above.

(more on next page)



### PRODUCTION

can be increased when a Monorail is used to keep materials or components moving to or thru a production area on schedule.



### STORAGE

is easier! Narrow aisles pose no problem. A Monorail crane moves overhead — spots the load quickly, accurately from above.



ENGINEERED MATERIALS HANDLING

13129 ATHENS AVENUE CLEVELAND 7, OHIO



# AMERICAN MONORAIL

**Strongest**  
for greater capacity

**Strongest**  
for longer life

**Strongest**  
for more protection

**Strongest**  
for lasting appearance



## DELUXE STEEL SHELVING

**strongest** because . . .

. . . the shelves are constructed to increase *structural strength* by coping corners to fit around the closed uprights, which are of I-beam construction. Deluxe shelves are formed with a continuous flange, "box-lid type" design for *greater stability*. Reinforced shelves, a Deluxe exclusive, have factory-embedded steel bars returned on the end flanges, adding *maximum rigidity*.

The film strip shows some engineered features that contribute to the greater strength of Deluxe steel shelving. With patented boltless shelf brackets, it is fast to assemble, fast to rearrange. Call your local Deluxe dealer for details or write us for new Deluxe shelving catalog No. 284.

**DELUXE METAL FURNITURE COMPANY • WARREN 5, PENNA.**

*A Division of The Royal Manufacturing Company*

DM-59-01

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## PRECISION HANDLING IS THE KEY TO AUTO ASSEMBLY

(Continued)

Until they reach the "drop".

At the drop, the body upstairs comes to the end of its line, where it's hoisted downstairs onto the chassis immediately under it. Here all the coordination and split-second handling is most evident. Here any earlier mistakes in scheduling would show up. Conveyors, monorails, lift trucks, live storage racks, and other handling equipment have all been coordinated into a finished product that has begun to take shape. Now the two parts have become an almost completed car.

Once past the drop, the car continues down the assembly line where front end, hood, bumpers, lights, etc. go on. Near the end of the line workers add oil, gasoline, and water. Others test every component. As the car rolls off the line it goes onto a test stand, where it's actually driven over stationary rollers to check every phase of performance.

The Chevrolet truck assembly line runs parallel to the automobile line. Here the assembly pace is slower—about 13 trucks an hour, compared to 55 cars. Trucks of all sizes go through mixed. The handling is less automatic than for cars, because with truck sizes, wheelbases, etc. differing so much it would be impossible to synchronize the speeds of the feeder lines to the main line. Otherwise, the procedure is generally the same as for cars.

With all the elaborate handling for assembly, engineers would like to be able to design a system that would last a while. But they know that's impossible. Cars change every year. And when they do, the handling systems change too. Even in years when the looks don't change much, there's usually enough difference to call for a considerable shakeup in handling methods. And when models change drastically, as they did for '59, the assembly plant is liable to look entirely different too. The entire plant layout may change. When this happens, in effect, Chevrolet starts out with a new plant. All that remains the same are the walls.



Each pallet weighs 2000 lbs. or more. Note economical use of narrow heavy-duty conveyor sections.

All loading and unloading takes place at front and rear of rack. No internal aisles needed!

## A-F LIVE STORAGE RACKS

**This inventory control center uses overhead space, needs NO cross aisles!**

This compact island of pallet storage provides ample capacity for inventory at American Brass Co., American Metal Hose Division, Mattoon, Ill. A-F Live Storage Racks make full use of overhead cube. Access is needed only at the perimeter!

The same number of pallets stacked on the floor would require  $2\frac{1}{2}$  to 3 times as much floor space. In "dead storage" racks—almost twice the floorspace!

With A-F Live Storage Racks, floor space economies are inherent. But, economies of *use* can be even greater. Orderliness, ease of access, first-in first-out control, simple inventory-taking—all result in time saved, labor reduced, mistakes avoided.

Wherever you have variety, quantity, rapid turnover of stored items, A-F Live Storage Racks offer these compelling economies. Whether you store pallet loads, individual cartons, or contents of cartons, your live storage system can pay *greater return per invested dollar* than almost any improvement you can make! Call or write today for complete details.

**AUTOMATIC WAREHOUSING** Tape, card or push-button control are all available with A-F Live Storage Systems. Operation can be completely automatic for maximum speed, accuracy and labor savings.



*A-F founded the package conveyor business in 1901*

## A-F Conveyors

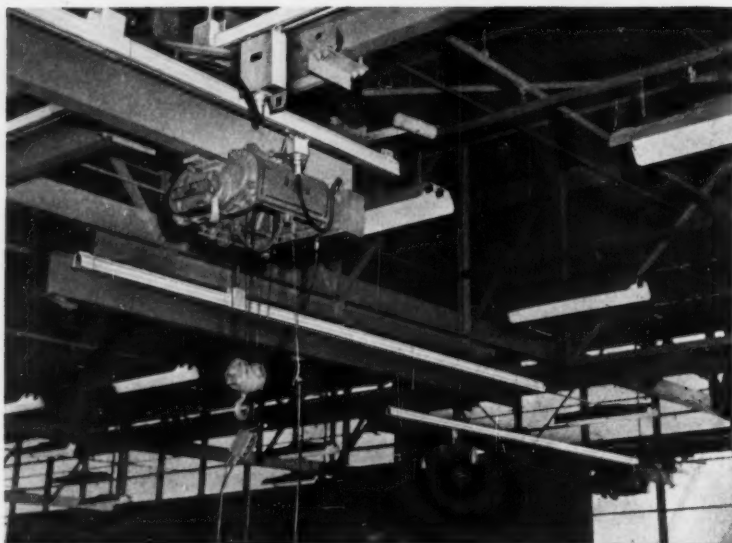
Custom Engineered Conveyor Systems  
Packaged Conveyors—Wheel, Roller, Belt, Trolley  
Pan and Rack Washers  
Metal Cleaning and Processing Equipment

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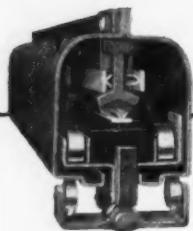
The Alvey-Ferguson Company, Dept. XD-6 Cincinnati 9, Ohio



# 4 EQUALLY GOOD REASONS



...why your cranes and hoists  
should be **FEEDRAIL®** powered



Throughout industry, flexible Feedrail systems, in capacities from 60 to 500 amperes, provide convenient movable power sources for:

- Cranes and Hoists
- Production Lines
- Conveyor Assembly Lines
- Moving Test Lines
- Portable Tools
- Machine Tools
- Cutting and Sewing Rooms
- Lighting
- Motor Control

**1. Safe electrification.** Feedrail conductors are protectively enclosed in steel — no exposed wiring, no trailing cables. You enjoy maximum protection for personnel and equipment.

**2. Minimum maintenance.** Elimination of frayed, sagging, broken wires means safer, less frequent maintenance.

**3. Better materials handling.** There are no time consuming traffic holdups with Feedrail. Fewer accidents, less maintenance mean absolutely minimum down time—more efficient materials handling.

**4. Lower operating costs.** Elimination of hazardous, wasteful working conditions not only leads to better performance but improves safety records and plant morale as well — eventually lowers insurance costs too.

A Feedrail "moving power system" will fit your crane or hoist's needs — can be installed quickly and easily. Get full information. Write today to Dept. F-2.

SOLD BY MORE THAN 1,000 ELECTRICAL DISTRIBUTORS FROM COAST TO COAST

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*Never Becomes Obsolete*

**FEEDRAIL CORPORATION**

Subsidiary of Russell & Stoll Company, Inc.  
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SPECIALLY QUALIFIED REPRESENTATIVES IN PRINCIPAL CITIES  
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## WE HAVE OUR OWN MATERIAL HANDLING SOCIETY

(Continued from page 113)

should be part of material handling. In some divisions it's handled by the same men. In others different people deal with handling and packaging. Again, it depends on the division. But even when we draw a line between the two, it's a fine line. Though the responsibilities may be separated, the two work together, because we find that they're usually doing different phases of the same job. You can see this from the list of six sub-committees. Several of these cover packaging and shipping topics.

The Frigidaire Division, and the others that sell their products in the packaged state, have more of a gap between packaging and handling. They must, because they're faced with a distinct consumer packaging problem in addition to protective packaging.

The one field where we separate packaging and material handling completely is replacement parts packaging. There are several reasons for this. One reason is that here again there's a consumer packaging problem in most cases. But even if that weren't the case, this operation is so big and complex that it demands separate attention.

Replacement parts packaging comes under the Service Section. This is an entirely separate function, comparable to the Production Engineering Section under which material handling falls. It's headed by Myrle E. St. Aubin. Ralph E. O'Reilly, Jr. is Contact Engineer, Service Parts Packaging. His job is similar to Wib Mallory's in material handling. Just as we have the General Motors Material Handling Committee and six sub-committees, O'Reilly has a similar setup in packaging. Only instead of six sub-committees he has two: sheet metal and glass. Those are GM's two major packaging headaches. These committees have saved us over 14 percent in packaging costs over the past five years.

Under our decentralized system described here, it's natural that each division buys its own material handling equipment and decides its own purchasing poli-





Wholesale florist reports stapling 3 times faster than previous method.



Huge stapled carton cuts packing time for 14-foot boats by 50%.



Stapled cartons for nails cost less and weigh less than wooden kegs.

## Slash your shipping room costs with Bostitch stapling



Stapling is faster than taping for sealing cartons of lighting fixtures—holds better, too.

Extra profits and competitive advantages were formerly hidden in these shipping rooms. They were found when the change was made to light, rugged corrugated cartons sealed with Bostitch stapling.

Gone are the wastes of outmoded closure methods. In their place are combined benefits of many Bostitch savings.

Bostitch stapling is faster than other closure methods. Staples cost less than other fastening materials. Strong stapled containers carry heavy goods safely and cushion fragile contents in shipment. Shipping costs of stapled corrugated containers are lower than for heavier materials.

350 Bostitch Economy Men work out of 123 U. S. and Canadian cities. Your nearest one will give you facts on shipping room stapling savings. You'll find him under "Bostitch" in your phone book, or mail coupon below.

Whatever you ship, Bostitch savings can give you an important competitive advantage. Send for free Shipping Room Booklet.

**Fasten it better and faster with**



Bostitch, 706 Briggs Drive,  
East Greenwich, Rhode Island

Name

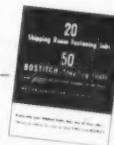
Company

Address

City  Zone  State

Please send me your Shipping Room Booklet.

We now ship  (Product) in  (Kind of container)



MEET  
THE  
MAN  
FROM  
WIREBOUND



At Lockheed Aircraft Corp . . .

## Jet canopies packed at $\frac{1}{3}$ the cost ...in protective Wirebound crates

Damage-free shipment is an absolute "must" for the product you see above. Used by the Lockheed Aircraft Corp. (Marietta, Ga., plant) in its B-47 Stratojet Modification Program, it's a plastic cockpit canopy. Over 12 feet long, these canopies are valued at up to \$20,000 each!

Until the Man from Wirebound arrived on the scene, these units were packed in wood crates made and assembled by hand. Today they're packed easier, faster in wholly prefabricated Wirebounds. Result: increased safety in transit . . . at a *third* of the former cost! Yes, and tare weight was cut by 117 lbs.

Savings like these typify the results you may achieve with Wirebounds. Custom-engineered to your product and requirements, modern Wirebound containers combine the exact strength you need . . . with maximum savings in time, labor, weight and container costs.

Why not have the nearby Man from Wirebound pay your plant a visit. A qualified packaging engineer, he'll be happy to study your methods . . . offer money-saving suggestions . . . and even submit sample Wirebounds for testing. There's no cost or obligation.



**FREE:** Send for informative booklet, "What to Expect from Wirebounds"

**Wirebound  
BOXES & CRATES**

**WIREBOUND BOX  
MANUFACTURERS ASSOCIATION**

Room 1462, 222 West Adams St., Chicago 6, Ill.

☐ Please have the Man from Wirebound call on me

Name \_\_\_\_\_ Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

☐ Please send FREE booklet

"What to Expect from Wirebounds"



9230

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## WE HAVE OUR OWN MATERIAL HANDLING SOCIETY

(Continued)

cies. The budgets come from GM, but how the individual divisions spend their budgets is entirely up to them. One may choose to follow the recommendations of the material handling committees. Another, for its own reasons, may not follow them. One may establish strong centralized purchasing policies. Another may leave each plant on its own. In that respect purchasing policies are identical to material handling procedural policies.

You don't have to be big to be a General Motors supplier. If you want to sell to a particular division, contact the division's purchasing department to find out who buys your type of equipment or services. Before you can make a presentation, though, you'll have to tell the purchasing department something about yourself. Prepare a paper giving some details about your company. The amount and type of information varies somewhat from one division to another, but generally it should include:

1. Vendor's name, address, and telephone number. Name, address, and telephone number of local representative, if applicable.
2. Date established.
3. Size of plant.
4. Number of employees.
5. Principal products.
6. Location of plants.
7. Description of production facilities and equipment.
8. Transportation facilities.
9. Approximate yearly sales volume.
10. List of three representative customers.
11. Financial and credit rating.



We got as far as packaging and ran out of money.



*faster,  
safer*



ANOTHER REASON WHY INDUSTRY MOVES  
**BETTER ON ALVEY-ENGINEERED CONVEYOR SYSTEMS**

**Automation** doesn't necessarily involve extensive plant-wide integration of materials movement. Alvey comes up with many ingenious ideas and methods that automate materials handling of segments . . . lines . . . and departments within plants.

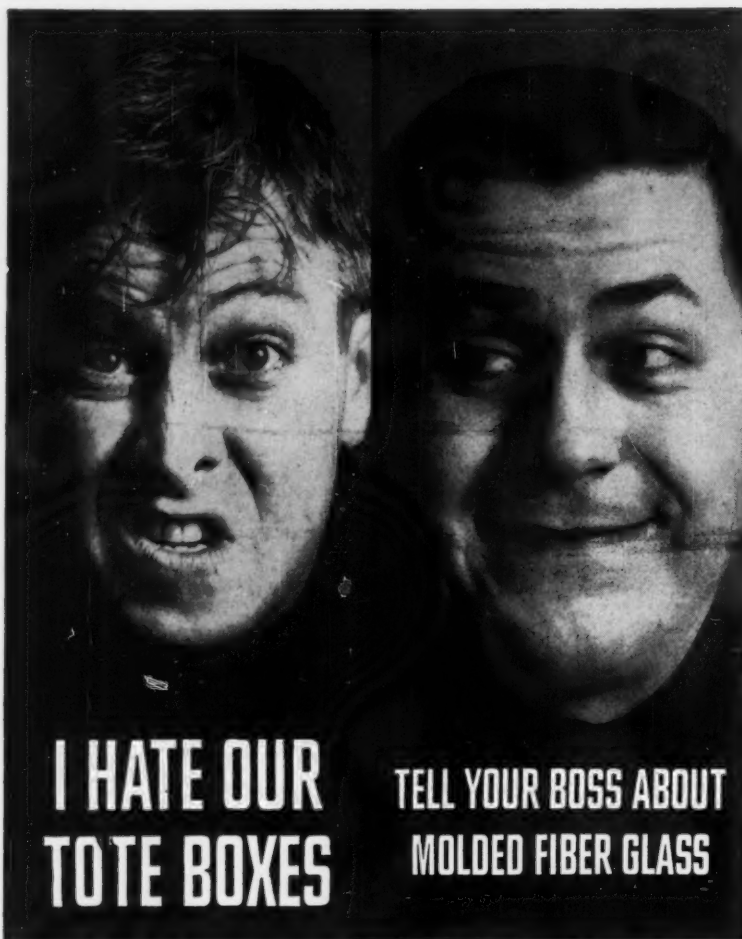
Alvey conveyor engineers keep their eyes on that **returnable** dollar. They create "pushbutton" movement of packaged goods and separate components—that not only saves time and manhours in the long run, but provides immediate returns on investment. Call us in to talk it over . . . no obligation!

**ALVEY**

**CONVEYOR MANUFACTURING COMPANY**  
9299 Olive Street Road • St. Louis 24, Mo.

ENGINEERED CONVEYOR SYSTEMS • PALLET LOADERS AND UNLOADERS • VERTICAL LIFT CONVEYORS  
ROLLER, BELT, APRON, PUSHER BAR, SPIRAL, AND SLAT CONVEYORS • PACKAGE HANDLING SPECIALTIES

Circle 7 on Reader Service Card for more information



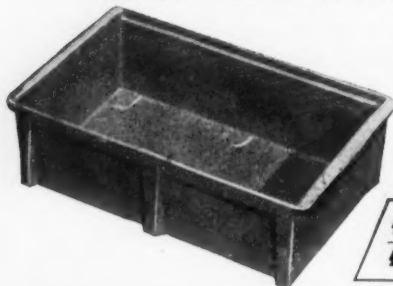
**I HATE OUR  
TOTE BOXES**

**TELL YOUR BOSS ABOUT  
MOLDED FIBER GLASS**

Yesterday again I cut my finger on a torn edge. And last week I had to scrap nine of them! . . . too many dents and bent sides. Boy, what I'd give for a box that would last at least a year . . . and wouldn't weigh a ton! Brother, I hate our tote boxes!

Tell him that now there are tote boxes that can't crack, can't rust, and can't tear at the edges. They're made of molded fiber glass, that's why . . . with wire reinforced edges. They're so strong you can jump on 'em without making a dent . . . but still real light to lift! Molded fiber glass, that's the ticket in a tote box. Saves lots of money.

**No Maintenance • No Repainting • No Repairing, with  
"TOTELINE" TOTEBOXES of MOLDED FIBER GLASS**



- Hold shape indefinitely
- Featherlight—but tough
- Heat-proof, chemical proof
- Clean easily • Seamless
- Stack conveniently
- Many sizes—many colors

**TOTELINE**

**MOLDED FIBER GLASS TRAY COMPANY**

**LINESVILLE, PA.** Offices in principal cities and Canada

MF-59-01

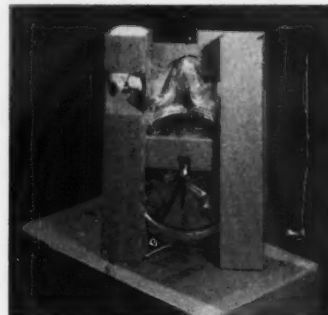
**WORLD'S LARGEST PRODUCER OF REINFORCED PLASTIC TRAYS AND TOTE BOXES**

Circle 116 on Reader Service Card for more information

## **FIBRE BOX COMPETITION WINNERS . . .**

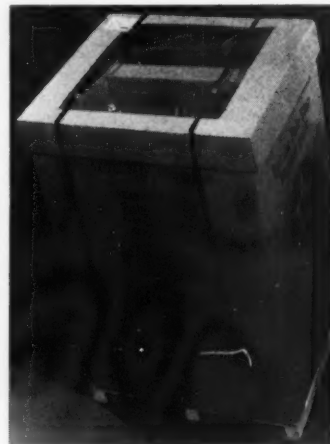
*(Continued from page 125)*

*Small appliances* — Boxmaker: International Paper Co. Customer: Haddon Clocks. Product: electric clocks. Corrugated box has inner packing designed to float and cushion large glass case for damage-free shipping and storage.



*Medium appliances* — Boxmaker: Stone Container Corp. Customer: Hotpoint Div. of General Electric Co. Product: electric table-top ranges.

*Large appliances* — Boxmaker: F. J. Kress Box Co. Customer: Pennsylvania Transformer Div., McGraw-Edison Co. Product: transformers. Made of weather-proof corrugated board. Special interior packing protects fragile porcelain extensions. Though transformers weigh 500 lbs they can be stacked three high.



*Furniture and household furnishings* — Boxmaker: Mohawk Containers, Inc. Customer: Stromberg-Carlson Co. Product: stereo-





## Only BAGPAKS® have a built-in insurance policy backed by International Paper

**A**CCIDENTS like this *will* happen. That's why International Paper plans for extraordinary stresses and strains when designing its Bagpak multiwall bags.

Only genuine *Gator Hide*® kraft, famous for toughness, is ever used in making Bagpak multiwalls. Quality is controlled every step of the way. International Paper can do this because it grows its own trees, makes its own paper, converts it into printed multiwall bags to your order. It also designs and builds *Bagpaker*® machines that

can package up to 60 tons of material per hour!

When you buy Bagpak multiwall bags you get speedy shipments geared to your production schedules. *Twenty-one* sales offices and four strategically-located plants save you money by keeping your inventory at a minimum.

Only Bagpak multiwalls are backed by the full resources of International Paper—world's foremost pulp, paper and paperboard producer.

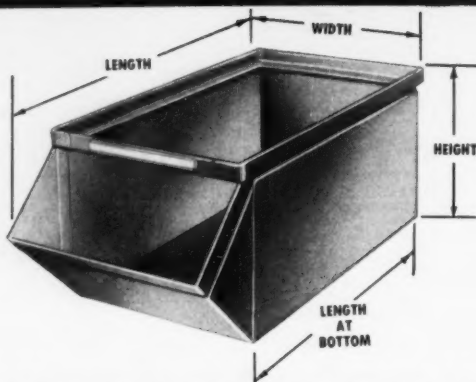
Next time your Bagpak field service engineer drops by, ask him what's new. He knows.



Bagpak Division **INTERNATIONAL PAPER** New York 17, N. Y.

Circle 99 on Reader Service Card for more information

**REDUCE HANDLING COSTS!  
INCREASE STORAGE CAPACITY!  
SIMPLIFY PARTS CONTROL!**



**"CUSTOM BUILD" TO SUIT YOUR NEEDS  
WITH MULTI-PURPOSE STACKBINS**



### In processing . . .

portable Stackbins carry common parts and supplies to points of usage without time-wasting transferal to other containers.



### In storage . . .

Stackbins stack securely to any desired height, with or without Stackracks. Floor space requirements reduced — stock capacity increased.



### In assembly . . .

Stackbin flexibility permits adapting assembly station to production requirements.

*Available in sizes to suit your requirements*

Bin No.	Width	Length	Bottom Length	Height	Weight (lbs.)
00	3½"	6"	4"	3¾"	1¼
0	4½"	8"	6"	4½"	1¾
1	5½"	12"	10"	4½"	3
2	7½"	15½"	12¼"	6"	5½
3	9"	18¾"	14¾"	7½"	9
4	12"	20½"	15¾"	9½"	14
5	15"	24"	18¼"	11"	20½
6	18"	30"	24"	12"	29

**At Booth  
972  
MATERIAL HANDLING  
INSTITUTES  
1959 EXPOSITION**

STACKBINS ARE MADE of heavy gauge steel, all-welded construction with positive stacking rim. Full flow hopper front and smooth interior make contents always visible — always accessible.

*All Stackbin products are sold direct. Write for more information today!*

**Stackbin Corporation, 1359 Main St., Pawtucket, R. I.**

*Mfd. & sold in Canada exclusively by Wickware-Stackbin, Ltd., Ottawa*

**STACKBIN®**



**SYSTEM**

*"Stacked and*

*Still Accessible"*

Circle 162 on Reader Service Card for more information

## FIBRE BOX COMPETITION WINNERS

*(Continued)*

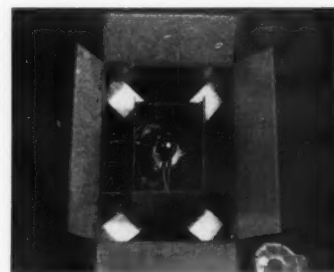
phonic hi-fidelity radio phonograph. The unit is bolted to a corrugated skid and blocked on all sides and top with built-up glued blocks. Special inner packing glued protects ends.



*Floor stands*—Boxmaker: Ohio Boxboard Co. Customer: Paper-craft Co. Product: gift wrappings.

*Shipping-display containers*—Boxmaker: Container Corporation of America. Customer: Kimberly-Clark Co. Product: sanitary napkins.

*Other products* — Boxmaker: New England Container Co. Customer: Bomac Laboratories. Product: magnetron tubes. Serves as tote box and shipping container. Inner container is floated on four corner pieces made of combined corrugated pads and polyurethane foam.

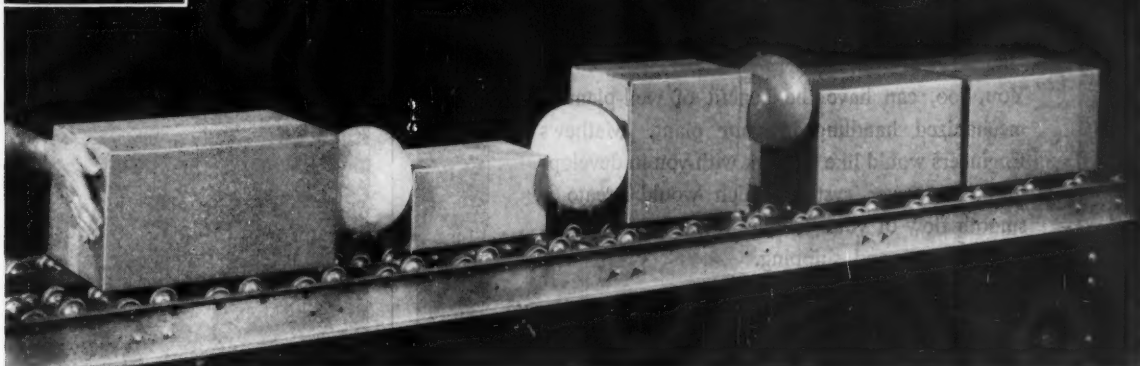


*Articles made of corrugated or solid fiberboard*—Boxmaker: Central Fibre Products Co. Customer: Noma Lites, Inc. Product: salesmen's carrying cases.

*Inner packing and inner containers* — Boxmaker: Container Corporation of America. Customer: Bell & Howell Corp. Product: movie projectors. Inner packing



# line pressure's gone!



## New *Rapistan*® APC pressure-sensing conveyor solves accumulation problems

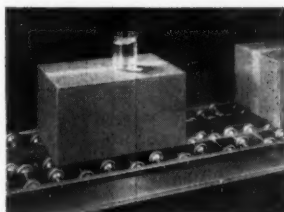
Believe it or not, the power belt conveyor in this picture is running — 50-lb. cartons tightly loaded on the line — but there's not enough pressure generated between cartons to compress the balloons holding them apart.

This is Rapistan's new APC (Adjustable Pressure) Conveyor. Its unique design keeps the line pressure so small the line can be held back with only finger-tip pressure regardless of the weight and number of cartons. It's always easy to stop the line for order assembly, packing, marking, inspection, shipping, or whenever desired in operations involving processing or accumulation of material on a conveyor line without stopping the belt.



### "Fluid-Drive" Clutching Action

Materials on APC Conveyor start on their way smoothly, without a sudden jerk. The water glass on this carton illustrates the smooth acceleration of materials on APC Conveyor. Fragile items, cartons with high centers of gravity, goods on overhead accumulation lines can be handled without danger of toppling.



Circle 10 on Reader Service Card for more information



### APC Conveyor Ends Carton Pile-Ups

Low line pressure with which APC operates adds a degree of safety for materials not attainable with any other type of power belt conveyor. Fragile items can be accumulated in line with heavy and durable materials, without danger of damage to cartons or contents from build-up of line pressure.

### Spaces Cartons Automatically

APC Conveyor gives you a vital safety feature for goods on the conveyor line, in negotiating curves and inclines without jam-ups. It spaces cartons automatically upon release from accumulation, without use of costly auxiliary equipment. It indexes cartons into case sealers, bottlers, or case-counting operations, avoiding pressures that are undesirable in these operations.

# Rapistan®

new ideas in materials handling

The RAPIDS-STANDARD CO., Inc.

554 Rapistan Building

Grand Rapids 2, Michigan



## Your **PRODUCT**, too, is important to **MATHEWS** Engineers

You, too, can have the benefit of well-planned mechanized handling in **your** plant. Mathews Engineers would like to work with you in developing a conveyer system which would create a smooth flow of **your** product through processing, warehousing, and shipping.

For up-to-the-minute materials handling, we believe you get the best when you buy equipment that is **Mathews engineered — Mathews planned — Mathews built** for you.



**MATHEWS CONVEYER COMPANY**  
GENERAL OFFICES . . . . . ELLWOOD CITY, PENNSYLVANIA  
PACIFIC COAST DIV. . . . . MATHEWS CONVEYER COMPANY WEST COAST,  
SAN CARLOS, CALIFORNIA  
CANADIAN DIVISION . MATHEWS CONVEYER COMPANY, LTD., PORT HOPE,  
ONTARIO.

**MATHEWS**  
*Over Fifty Years of Leadership in Mechanized Handling*

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## FIBRE BOX COMPETITION WINNERS

(Continued)

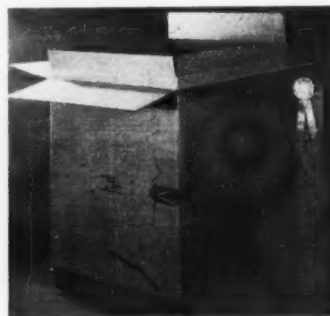
consists of a single die-cut tube dropped over the product and compressed until horizontal spacer ribs expand to take up space between inner and outer container walls.



*Distinctive features*—Boxmaker: Ohio Boxboard Co. Customer: Pennsylvania Rubber Co. Product: basketballs.

*Carry-home packs*—Boxmaker: Continental Can Co. Customer: Stanley Furniture Co. Product: chairs.

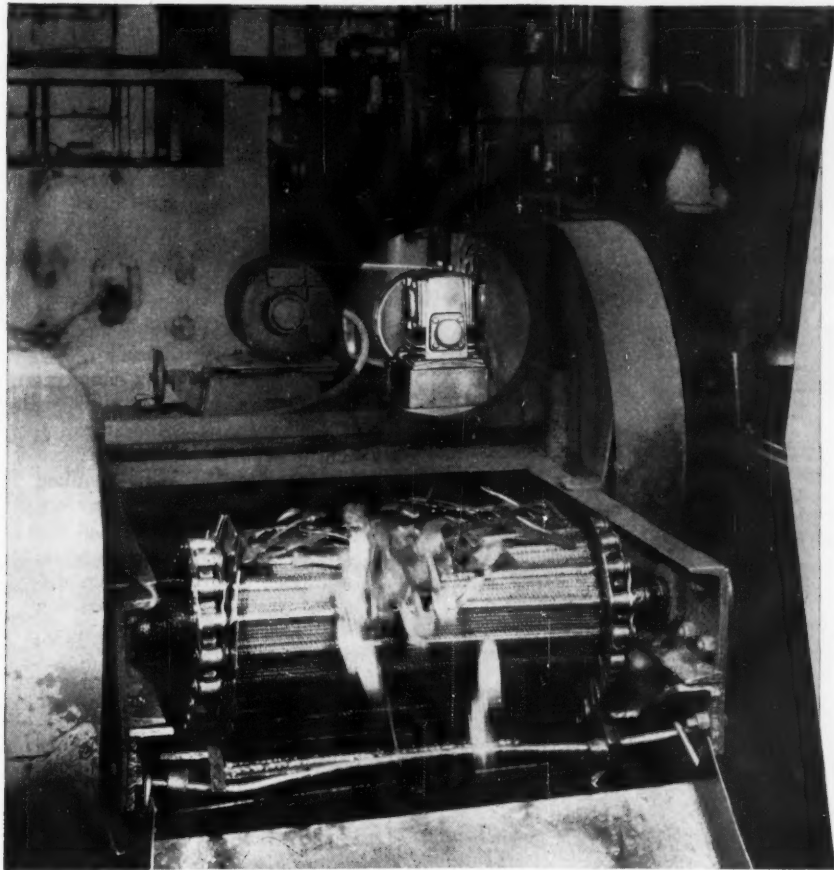
*Palletized products, unitized loads, and bulk loads*—Boxmaker: Continental Can Co. Customer: Eleanora Chemical Co. Product: bulk polyvinyl chloride. Double-wall corrugated box holds 1,000 pounds of PVC. Bellows fold creates frame inside, makes side-walls rigid, prevents bulging. Corrugated pallet glued to bottom.



*Surface design and printing*—Boxmaker: Hinde & Dauch. Customer: Daub Bros. Cheese Co. Product: food.



## Foote Bros. Drives in the METALWORKING INDUSTRY



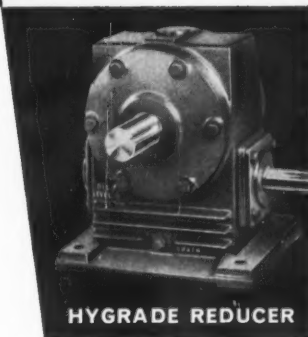
*Hot Stuff  
Coming  
Up On  
Schedule*

This small Foote Bros. Hygrade Worm Gear Reducer is driving a quench tank conveyor in a large midwest heat treating plant. Parts from the heat treating furnace drop on the wire mesh belt, which moves them through an oil quench tank on a precisely determined time schedule.

To provide the proper quench and insure on-time delivery of parts to the customer, the operation of this conveyor is of critical importance. Though it was installed almost two years ago, the Hygrade Reducer has operated perfectly under tough working conditions.

You can see Foote Bros. Hygrade Worm Gear Reducers in capacities ranging from 168 HP down to  $\frac{1}{3}$  HP, doing almost every kind of power transmission job in metalworking plants—from driving giant machines to powering small conveyors like the one shown here. The reason? Metalworking men *know* they can depend on Hygrade Reducers for the rugged stamina and reliability that has made them the buy-word in the industry.

There's a Foote Bros. unit available to meet your drive requirements. Your Authorized Foote Bros. Distributor is as close as your telephone. Ask him to recommend the right unit for your requirements. Find his name in your Classified Telephone Directory.



Hygrade Reducers of this type are stocked by your Authorized Foote Bros. Distributor. Ask him for STOCK PRODUCTS CATALOG SPA, which describes the complete line.

**100 YEARS**  
SERVING INDUSTRY  
**1859-1959**

# FOOTE BROS.

*Better Power Transmission Through Better Gears*

FOOTE BROS. GEAR AND MACHINE CORPORATION • 4577 SOUTH WESTERN BOULEVARD • CHICAGO 9, ILLINOIS

Circle 198 on Reader Service Card for more information

JUNE, 1959

147



# Wait a minute!

## adding to your warehouse?

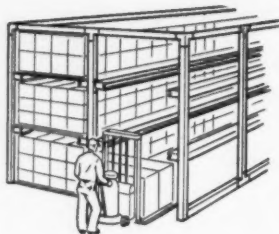
Has it ever occurred to you that you may have sufficient space—if you can put it to proper use?

Let **PALTIER** trained Materials Handling Engineers take a look. With properly selected equipment and flow of materials your present storage may be adequate! Storage equipment **COSTS LESS** than **NEW FLOOR SPACE**!

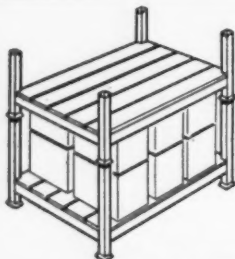
**PALTIER STORAGE SYSTEMS** are designed jointly by industrial architects, structural and materials handling engineers.



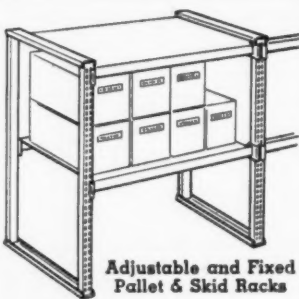
**Tying Pallet Hardware**  
for standard pallets



**Drive-In Racks**  
for Bulk Storage



**Portable Stacking Racks**  
for practically every use



**Adjustable and Fixed**  
Pallet & Skid Racks

Also live racks, palletless "Finger" racks, and other specially built items to solve your specific problems.

Write today to . . .

## THE PALTIER CORPORATION

Designers, Engineers and Manufacturers  
of Engineered Storage Systems

1709 Kentucky Street • Michigan City, Indiana

—DISTRIBUTORS IN PRINCIPAL CITIES—

NATIONAL DISTRIBUTORS FOR MET-LITE ALUMINUM DOCK BOARDS AND TRUCKS

Circle 139 on Reader Service Card for more information

### 3-LEVEL APPROACH TO HANDLING . . .

(Continued from page 100)

for uninterrupted flow of material.

**Plant level**—Material handling engineering at the plant level may be done by only one man, or a group, depending upon plant requirements. This activity is responsible for developing plant programs which are in line with divisional and corporate objectives, as well as resolving the day-to-day handling problems.

All material handling engineers at Chrysler serve in a staff capacity—either on a corporate, division, or plant level. The organization that does the actual handling of material comes under production control. It embraces all the activities responsible for the actual loading, shipping, receiving, distributing, storing, and line feeding of production material. The supervision is well trained.

### Standards and Procedures

Standards at Chrysler generally involve equipment (most are standard procurement specifications). They are developed by staff material handling engineering in conjunction with division material handling activities for their comments and recommendations. Adherence to standards is exceptional because operations and purchasing find them advantageous. Appropriations request from operations are reviewed by staff material handling engineering and proposed purchases of nonstandard equipment are questioned.

Staff material handling engineering normally develops material handling engineering procedures or the material handling engineering portions of procedures covering a larger scope.

Procedures may go across organizational lines, and cover the responsibilities of all Chrysler activities concerned with the subject. Generally they are not used to establish standard practice within an activity. How the requirements of a procedure are to be met is left to the activity (such as purchasing). Local supplementary procedures or supplementary instructions can be issued by individual activities but are not effective outside the activity.

# REACH.....



**GROVE'S GOT IT!**

## BOOM TELESCOPES BY HYDRAULIC POWER

• 8 TO 24 FEET •

The Grove Live-Boom will telescope with full rated load on the hook . . . in or out . . . up or down. The Grove Boom's length is measured in feet clear of the front of the crane . . . the useful working length. Grove Cranes do not count the boom length "inside the crane".

The three section, 8 to 24 ft. telescoping boom is a Grove exclusive. This is just one of the many reasons why more major industries are selecting Grove Hydraulic Cranes every month.

Grove Cranes are priced lower than any other crane of the same capacity. This savings is due to the simplicity of design which eliminates needless parts and attachments . . . Grove's use of standard components . . . and the outstanding Grove integral frame and counterweight.



Grove Cranes will lift more payload . . . move it faster . . . place it in tighter spots . . . with greater safety . . . than any other crane. Precision control of the load at all times is provided by sensitive, safety-engineered hydraulic boom controls.



SEE THE GROVE LINE  
AT THE LAKESIDE  
DOCK EXHIBIT AREA

THE PROOF IS IN PERFORMANCE . . .

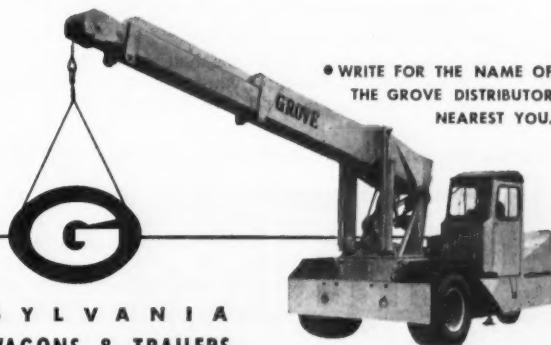
**LOOK AT ALL FOUR!**

. . . but before you buy, have a GROVE competitive demonstration.

**GROVE MFG. CO.**

SHADY GROVE • PENNSYLVANIA  
BUILDERS OF HYDRAULIC CRANES, INDUSTRIAL WAGONS & TRAILERS

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• WRITE FOR THE NAME OF  
THE GROVE DISTRIBUTOR  
NEAREST YOU.

JUNE, 1959

149

# NEW Clarke

## POWER SWEEPERS



Model ERS-36

*do the work of up to 20 men  
...cut sweeping costs up to 80%!*

The new Model ERS 36 Rider Type unit picks up all types of debris, covers up to 100,000 square feet per hour. It sweeps a 36" path with main broom, 47" with one side broom and 58" with two side brooms. Unique forward, stop, reverse control eliminates shifting of gears.

Advanced Clarke design offers a host of new efficiency features: Exclusive dust control system protects premises and personnel. Rotary broom control adjusts for 23 broom positions, guarantees maximum broom life. Rugged construction assures years of dependable, time-and-money saving service. Priced far less than you'd expect to pay for a rider type machine. Manufactured and guaranteed by Clarke, the best known name in floor machines.

Write for more information or, better yet, ask your Clarke power sweeper distributor to give you an on-the-job demonstration and show you how much you'll save with a Clarke.

See Us at Booth 2033, The Materials Handling Institute's Exposition, June 9-12, Public Auditorium, Cleveland



756 Clay Ave., Muskegon, Mich.  
Authorized Sales Representatives and  
Service Branches in Principal Cities  
In Canada: Clarke Floor Machine Com-  
pany (Canada), Ltd., 21 Advance Rd.,  
Toronto 18, Ontario

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### HOW TO PLAN MATERIAL HANDLING . . .

(Continued from page 105)

total inter-plant shipments and requires careful study to insure efficient use of railroad car facilities, uniform loading, effective bracing, and ease of loading and unloading.

Chrysler generally uses trucks when the shipping distance is relatively short or when volume does not warrant carload shipments. Packaging and loading problems when using trucks are different than those of rail shipments. In freight cars, packaging and bracing is used primarily to protect from impact, while packaging for truck shipment is less concerned with impact and more involved with vertical bounce and vibrations.

Another important link in Chrysler's handling plan is its inter-plant transportation. Its trucks use durable containers for shipments between Chrysler plants. The moves can be made on a scheduled basis that allows efficient loading, transporting, and unloading.

### III. Unloading and Distribution

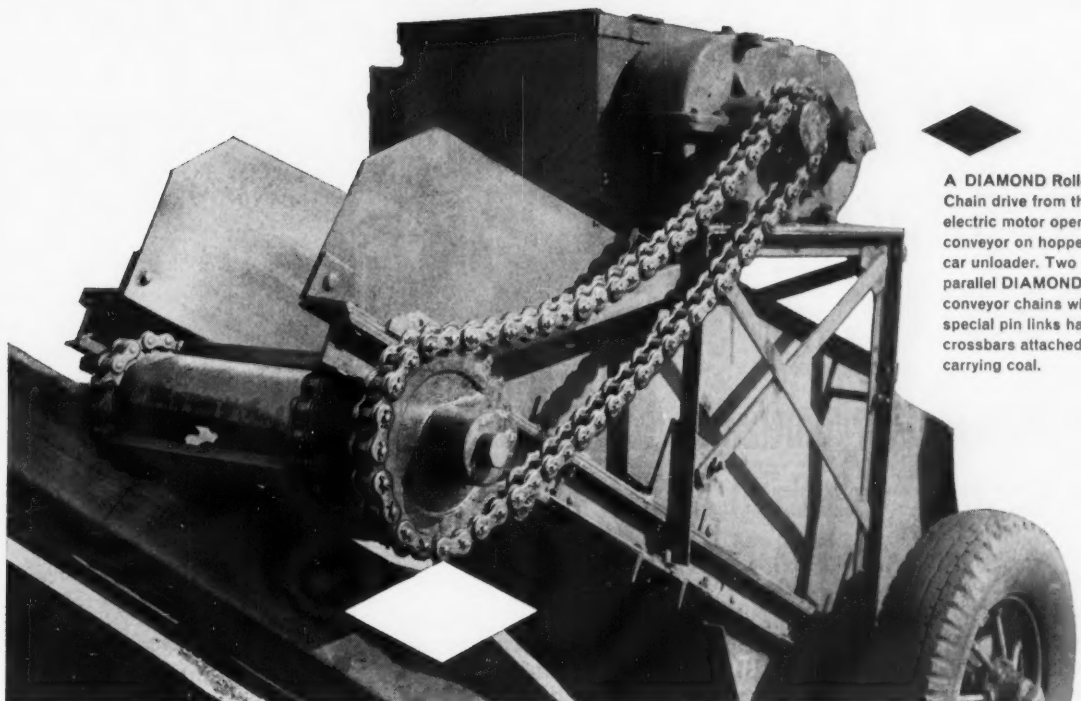
One of the biggest handling jobs in a plant is the unloading and distribution of incoming material. The concentration of handling at the rail and truck receiving areas makes the planning of handling methods and facilities imperative.

Generally rail and truck receiving are located near to each other to minimize the supervision and clerical help needed. Docks must be located so that material will flow smoothly into the plant without congestion or excessive re-handling or back-tracking.

### Railroad Receiving

The number of car spots needed is determined by the average number of rail cars which must be unloaded each day, the time needed to unload the cars, and the number of hours it is planned to operate the receiving dock. The width from the edge of the dock to the nearest obstruction should be adequate for efficient unload-





A DIAMOND Roller Chain drive from the electric motor operates conveyor on hopper car unloader. Two parallel DIAMOND conveyor chains with special pin links have crossbars attached for carrying coal.

# DIAMOND ROLLER CHAIN

... still going strong after 30 years of hard use!

This hopper car unloader at Newhouse Coal Company, Blue Island, Illinois, was put into service on February 20, 1929. After continuous all-weather use, it is still operating with the *original* DIAMOND Roller Chains on the main drive and conveyor.

For real work-horse stamina, low-cost operation and proven performance . . . you can depend on a long life of trouble-free service from DIAMOND Roller Chains. Whether the job is conveying, power transfer, precision

timing . . . DIAMOND meets the most exacting conditions.

Specify DIAMOND to solve difficult problems of load, shock, fatigue and abrasion . . . with minimum maintenance and complete all 'round satisfaction.

Your DIAMOND Distributor has all types and sizes of standard Roller Chain in stock. Bronze and stainless steel are available for corrosive conditions. Look under "Chains" or "Chains, Roller" in the Telephone Directory *Yellow Pages* . . . or write to Diamond Chain Company for complete catalog and name of your nearest Distributor.

## DIAMOND CHAIN COMPANY, INC.

*A Subsidiary of American Steel Foundries*

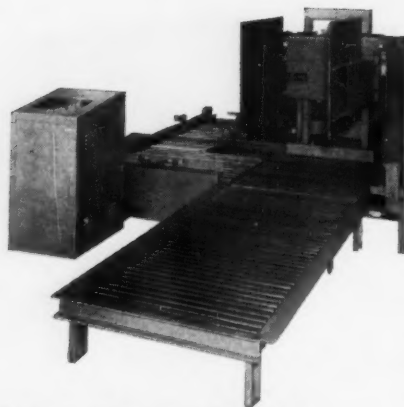
Dept. 624, 402 Kentucky Avenue, Indianapolis 7, Indiana

*Offices and Distributors  
in All Principal Cities*



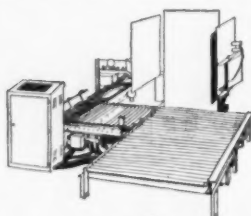
Circle 62 on Reader Service Card for more information

# Ask Standard how to:



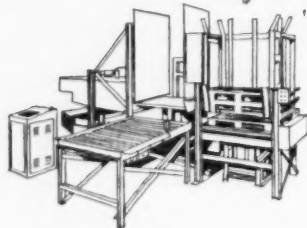
- ✓ Palletize or unitize *automatically*
- ✓ Unstack palletized or unit-loads *automatically*

Standard Conveyor Company offers a wide range of precision engineered machines for fast, automatic assembly, as well as unstacking of palletized or unitized loads — applicable to a wide variety of cased merchandise — operate at convenient low working level — faster than manual methods — save man-hours.



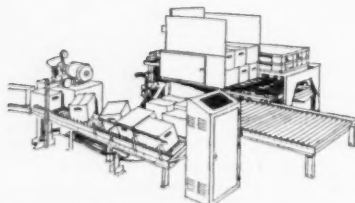
## CLAMP-TYPE UNITIZER

Assembles unit-loads in desired size and shape automatically in a steady, uninterrupted flow directly from conveyor. Forms unit-loads by clamping and lifting successive layers of cases. 1800 lbs. maximum unit-load capacity; can be used with or without pallets.



## LO-LOAD TYPE UNITIZER

Automatically receives individual cases from conveyor lines and arranges them into unitized load. Operates at low working level. Builds loads in successive layers of cases through finger supports which retract as layers are completed. 2500 lbs. maximum unit-load capacity; handles items packaged or bottled in glass containers.



## UNITIZER UNSTACKER

Unstacks pallet unit-loads automatically, up to 45 cases per minute. Lifts load from pallet (which is automatically moved into pallet stacker). Successive layers of cartons are released and single cases fed onto outgoing conveyor line.

**INVESTIGATE** — send for literature and complete information on machines suitable for your merchandise. Write Dept. A-6, Standard Conveyor Company, North St. Paul 9, Minnesota.

**Standard**  
GRAVITY & POWER  
CONVEYORS

Sales & Service in Principal Cities

Circle 163 on Reader Service Card for more information

See Our Exhibit  
1959 Material Handling  
Exposition  
June 9-12 Cleveland  
Booths 1941-1943

## HOW TO PLAN MATERIAL HANDLING

(Continued)

ing and movement of handling equipment. Generally 30 feet is recommended, 15 feet for unloading and 15 feet for a clear main aisle.

Unloading efficiency depends greatly on the use of established procedures and forms. Of primary importance at Chrysler are the car arrival list, the switch list, the shortage list, Consist car (a freight car used for repetitive shipments of uniform quantity, loading arrangements, and dunnage) data, and the unit load and routing list.

- **The car arrival list** indicates what cars have arrived and how long they have been waiting for unloading. It is analyzed along with the advance shippers and production schedules to determine the switch list for railroad spotting.

- **The switch list** must take into consideration the immediate needs of production, critical shortage items that must be expedited, and the need to balance cars to track space, fork truck time, and manpower. All this must be done without incurring unnecessary demurrage costs. The switch list also establishes the location at which each car will be spotted so that the most efficient flow is established from car to storage or line feed. Planned spotting of cars also virtually eliminates car setbacks and the resulting loss of manpower involved in repacking and closing cars. Cars with longer than normal unloading times are located at the bumper end of the string. Before switching, the Consist car data are reviewed and unit load and routing lists are available.

- **Consist car data** shows what is contained in the car, how it must be unloaded, and tells how to prepare the car for the return trip.

- **The unit load and routing list** specifies the containers and accessories needed to contain, transport, and store the commodities from each car.

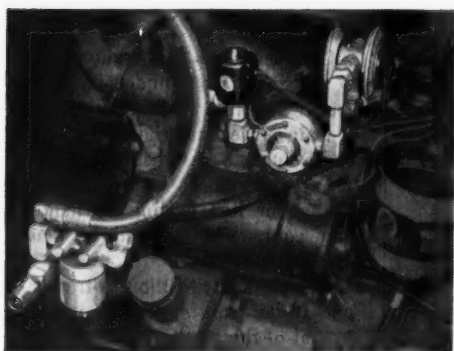
## Truck Unloading

The size of the truck dock and



Equipped with a specially engineered brush-and-vacuum system this new Tennant Model "80" offers fast, clean pick-up of all types of soilage in a 53" path. The highly maneuverable machine is powered with an engine made by Wisconsin Motor Corporation, foremost builder of heavy duty air-cooled engines.

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While the Tennant sweeper in the photo cleans up all soilage, the air remains clear of objectionable exhaust fumes. Because exhaust fumes can be dangerous as well as unpleasant, and because economical operation is important, the Wisconsin engine is equipped with Zenith\* LP-Gas carburetion. The economical fuel burns clean with no lead deposits. Engine oil dilution is held to a minimum and oil lasts three to four times longer, with overhauls reduced up to 50%.

In addition to the economy of the Zenith LP-Gas carburetor, a vacuum switch and solenoid automatically shuts off the fuel when the engine stops, providing safety and preventing fuel loss. All essential components are fully approved by Underwriters' Laboratories.

Wisconsin Motor Corporation offers Zenith LP-Gas Carburetion Systems as original equipment on all its engines from 3 to 56 H.P. And for their conversion kits Zenith is again the choice of Wisconsin, the leader in the field of heavy duty air-cooled engines.

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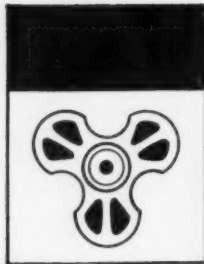
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## HOW TO PLAN MATERIAL HANDLING

(Continued)



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Exclusive M-D 3-lobe design adds strength—reduces torsion. Dynamically balanced rotor permits higher speeds—greater pressures.

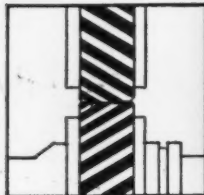


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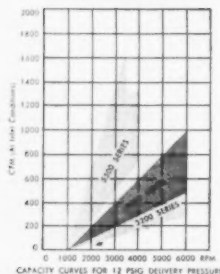
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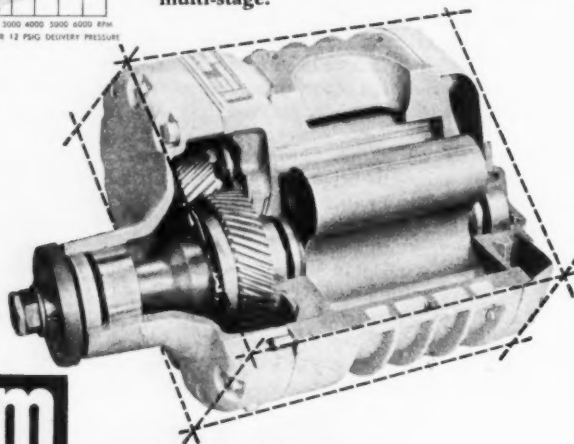


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the number of spots needed is determined in much the same way as for the rail dock. Generally Chrysler recommends enclosing all truck docks, depressing them for level unloading, and equipping them with adjustable dock plates. It is recommended that about 60 feet be allotted from the edge of the dock to the next obstruction for unloading, a traffic aisle, and a trailer train make-up area.

The degree to which a truck loading operation can be planned on a shift-to-shift basis depends on the volume. If the incoming truck volume is low there is little to be gained by scheduling trucks into the plant, so they are taken on a first-come-first-served basis.

However, if volume is high it can cause some unwieldy handling operations and plug up the truck receiving facilities. The answer is to establish a bull pen from which inbound trucks can be scheduled into the unloading dock in an orderly fashion based on production schedules, float considerations, and the availability of manpower and equipment.

### Distribution

Chrysler uses the trailer-train to distribute parts under its integrated handling system. The trailer-train moves material over specified routes to assigned locations. Then material is transferred to storage or line feeding by handling equipment assigned to that area.

The principle of the tow-tractor and trailer-train system is similar to that of the highway semi-trailer—a given power unit can pull more than it can carry. The advantage of the lift truck is that it is a movable elevator. Its primary job is to lift; its mobility is for moving from one lifting assignment to another. Therefore Chrysler specifies tow tractor and trailer-train movement for round trips over 300 feet.

The key to successful trailer-train operation is the use of a unit load and routing list and traveling over planned routes. The unit load and routing list specifies the



load and its destination. This helps the material handling foreman in making up trains for the tow-tractor to move. Each trailer is identified by destination, so the driver knows exactly where to leave it. Empties are picked up for return to their loading location. Each driver has a specified route or routes which he must travel in a specified time. These routes are laid out to establish proper distribution of the material and the work-load.

The standard coupling system on trailers and tractors is simple, easy to maintain, and permits accurate maneuvering. The standard containers all fit on the standard trailers that are used, so loads are secure and easily removed.

Aisles are straight and broad. As each route is established, workloads are balanced so that all areas are served adequately. The unit load and routing list is made up from the packaging specifications, process sheets, layouts, and standards. This list enables the foreman to direct the movement of material in the most economical fashion.

The fork truck is the other major component of the in-plant handling system. Fork trucks are assigned to specific areas; they don't have to make long runs because the trailer trains make the long moves. Special low-mast 4000-lb capacity fork trucks are used at most Chrysler shipping and receiving locations for unloading highway trucks and trailers. Most of the other lift trucks used at Chrysler have a lifting capacity of 4000 or 6000 pounds. The size of the area normally covered by a given fork truck depends on the workload concentration and handling frequency.

#### IV. Reserve Storage

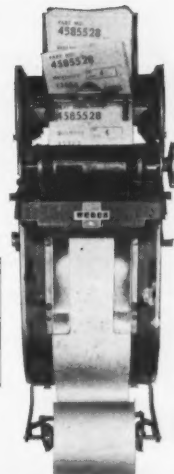
Chrysler has two objectives in its reserve storage planning: 1. To select a location which minimizes handling and fits into the overall handling plan. 2. To set up an area large enough to accommodate the established floats.

The location of the reserve storage area is determined only after a detailed study of the flow pattern and the volume of movement

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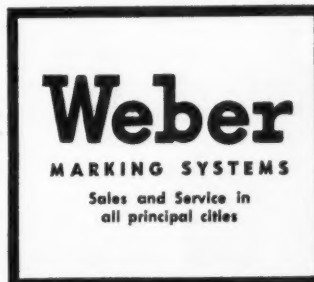


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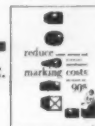
complete flexibility—print shipping labels one minute, product identification or packing slips the next. The Weber Label Printer can be adjusted in seconds to satisfy all your requirements for different sizes and varieties of labels for use in shipping, production, packing, inspection or for other departments. Prints from either a stencil or rubber mat on practically any roll stock—gummed, ungummed, linen or pressure sensitive. For more detailed information on the various Weber Label Printers, mail the coupon below.



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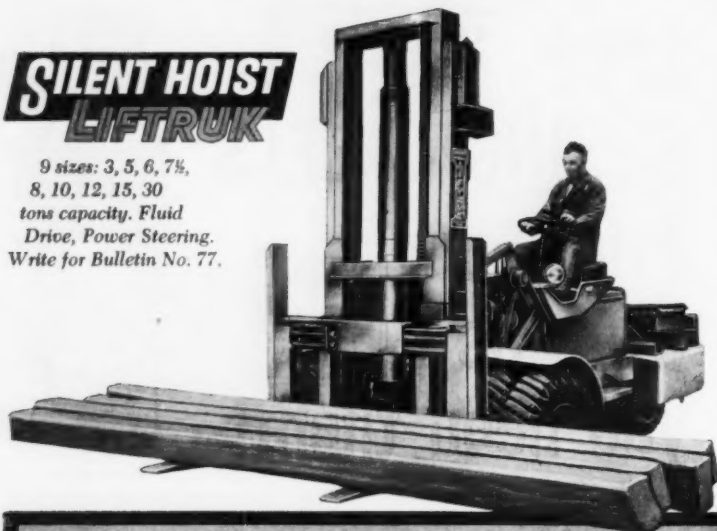
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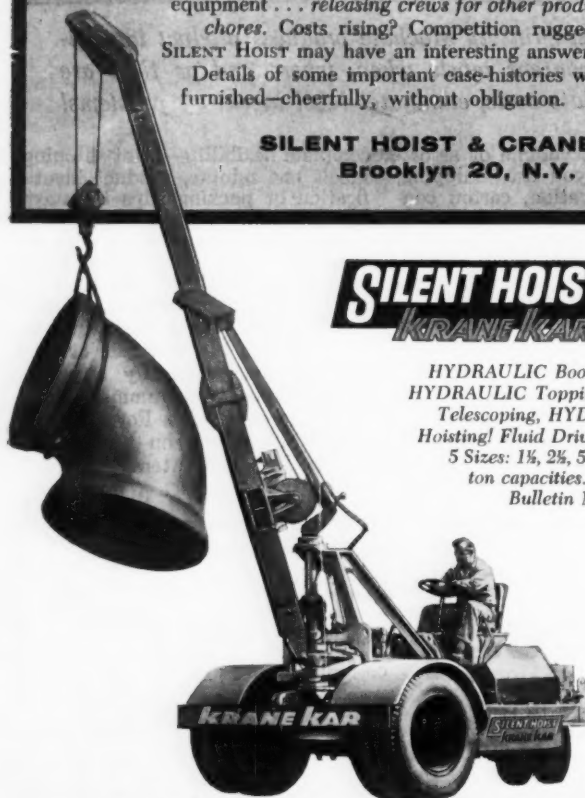
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## HOW TO PLAN MATERIAL HANDLING

(Continued)

to specified areas. This requires precise knowledge of anticipated production schedules, part usage, and container use. It is the number of unit loads or containers moving to a given area that is significant, not the number of parts. To insure equal attention to all handling factors the material handling problem is reduced to a common denominator, the unit load. The material handling engineering activities recommended location for reserve storage areas is weighed against other factors which determine an efficient overall layout. The major factors affecting stock storage space are the production schedules, receipt quantities, type of containers used, material floats, truss heights, column spacing and floor load capacity.

The unit of measure for determining storage space is the container. The bill of material is translated into total containers needed for a given float requirement, and adequate space is allocated. The reserve storage space should always make full use of air rights to save space. Adequate access aisles promote efficient handling.

It is good practice to provide off-aisle space for loading and unloading trailers. This frees the aisles for normal traffic and the uninterrupted flow of material.

Chrysler recommends these aisle widths:

Type of Aisle	Width
Main	15 feet
Intermediate	12 feet

The nature of the reserve storage operation depends on the equipment used in the handling system. Most systems in the automotive industry are built around unit loads. Loaded containers usually reach the storage area on trailers. Fork trucks unload the trailers and tier the containers in the storage area. Whenever feasible Chrysler puts material in standard containers, either racks or bins depending on the nature of the parts. Material is also received in expendable packages or con-

tainers, either mechanically or manually handled. Semi-permanent racks (of standard design) are used to store this type of package efficiently. These racks provide good selectivity, good house-keeping, maximum use of floor space, and reduce handling damage in packages not designed for tiering.

### V. In-Process Handling

For line feeding Chrysler tries to make sure that:

1. There is adequate space next to the production operation for the item being used.

2. Each line-feed storage location is identified with the correct part number.

3. Fast-moving materials are fed to the line on trailers whenever possible. This eliminates demand fork truck handling and possibilities of delay due to fork trucks being momentarily unavailable.

4. When space is limited, slow moving stock is not allowed to occupy choice front-line locations.

5. All stock on the line is piled neatly and safely.

6. Discrepancies or incorrect stock in packages is reported directly to production control by the production foreman.

7. Material handlers are instructed how and when to replenish line supplies.

Line feeding and in-process storage are provided primarily to insure smooth, uninterrupted flow of production. Chrysler uses this rule-of-thumb to determine the amount of stock to be delivered to the line: If the material is handled by hand, stock 8 hours of material; if the material is unitized (in containers, racks or pallets) stock 4 hours requirements.

Chrysler has established these principles of storage area operation:

- A place is planned for the reserve storage of every part, and parts are kept only in those places. If it is not practical to pin-point specific shelf locations for certain parts, like part groups should be kept together. Certain racks should be designated to keep overflow material on an organized and planned basis.

- Parts are kept completely checkable at all times. In each area, cycle checkers maintain stor-



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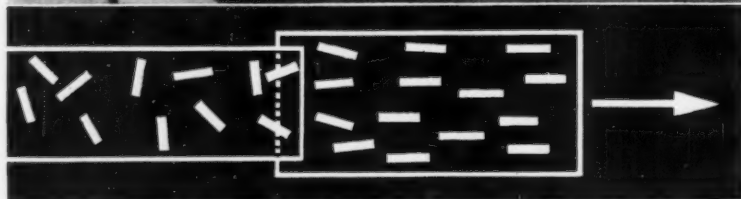
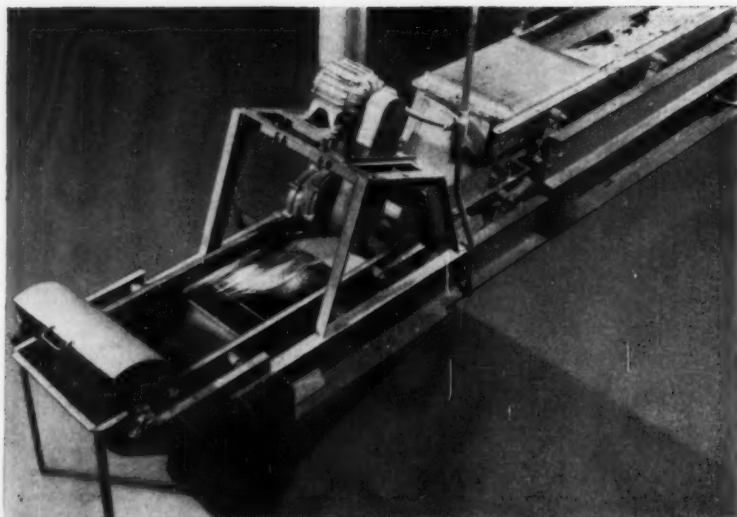
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### HOW TO PLAN MATERIAL HANDLING

(Continued)

age location information of specific parts on their check sheets.

- Incoming material is systematically put away in the correct locations. Empty containers are put on tow trailers and properly positioned for pickup by tow tractors.

- All storage locations are identified adequately. Neat, legible signs suspended from trusses identify the storage area of fast moving unit-load items. Attached labels are used for semi-permanent rack storage.

### VI. Packaging and Shipping

The nature of the end product determines the extent of the outbound packaging and shipping problems. For example, a plant devoted entirely to the assembly of cars has no significant packaging problem, but does have one in shipping and distribution. A supplier plant, which generally receives only raw material and standard parts which are fabricated and assembled into shipping assemblies, has significant packaging as well as receiving and distribution problems.

The factors to be considered in developing the best packaging and shipping methods are the same as incoming materials as described on page 105. The physical aspect of parts—size, weight, material, finish, and damage potential—must be analyzed. This data in addition to control elements such as schedules, production rates, cycle shipping banks, and floats at the receiving plant must be considered before deciding on the packaging and shipping method. Again, this information must be analyzed in light of existing freight classification, freight rates (rail versus truck), and the availability of transportation facilities and equipment handling at the receiving location.

For information on any item advertised in this magazine, use the Reader Service Card between pages 164 and 165.



## FLOW CHANGE DOUBLES PLANT OUTPUT . . .

(Continued from page 118)

the bearings), the other cones (inner rings). The cups and cones drop into metal tote pans at each machine; from time to time the operators carry these pans to a large metal conveyor belt and dump them. From this point until the last stop, conveyors and machines take over.

Wherever possible, New Departure's engineers have taken advantage of gravity and the shape of their product; they make the components roll down from one location to the next. But you've got to get the parts up before they can roll down, and this is the job of the risers. Most of them are made of bicycle chain with metal fingers projecting every few inches to provide a seat for the components during their vertical rides.

The first belt, alongside the screw machines, makes the longest run. It is about 80 ft long and 1 ft wide. It consists of a series of narrow steel plates, each hinged to its adjoining plates. At the end of its run, this belt dumps the mixed cups and cones into a riser belt similar construction. This takes them to the top of a chip remover-washer-vibratory separator machine. The cones are smaller than the cups and drop through holes in the separator to their own channel. When the cleaned parts come out of the machine, each type is travelling in a separate conveyor.

The parts now go to accumulators where they collect to be fed as needed to following operations.

The cones drop from their accumulator to a dual-wheel surface grinder, where both sides are ground simultaneously, then are carried to the identification press. Here the New Departure name and number or the customer's identification is stamped on the side. Then to a washer, and on to the heat-treat furnace.

The cups during this time have dropped from their accumulator to the O.D. grinder, and then to the same washer and furnace as the cones. However, the cups and cones are kept separate in the washer and furnace, each com-

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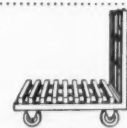
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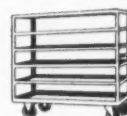
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## FLOW CHANGE DOUBLES PLANT OUTPUT

(Continued)

ponent travelling in its own conveyor channel. As they emerge from the furnace, the lines split. Let's follow the lines separately until they come together again for assembly.

### Cone Line:

The cones are carried from the furnace to the hard surface grinder, where they get their finished

width, and then to the hard O.D. grinder for final diameter. They now pass to the automatic pre-check gages, where their bores, diameters and widths are checked. The cones that pass are lifted to an accumulator which automatically feeds a bank of bore grinders through a recirculating line. The recirculating line makes a complete downhill gravity loop past the grinders and back to the accumulator, with a take-off from the line down to each grinder. As a cone rolls down the loop it will

drop into the feed line of the first machine where there is room for it. If all the lines are full, the cone comes back to the accumulator, is re-raised, and sent on the down loop again.

The bore grinders feed a line that carries the cones to the automatic bore gages, which pass along to an accumulator all units that are acceptable, reject those with too large a bore, and divert those with too small a bore to the bore honer for enlargement. The honed units then join the previously accepted cones in the accumulator. A recirculating line feeds these cones to the bank of cone race (also called "cone ball track") grinders. From here they go to a washer and then another accumulator, which feeds a recirculating line for a bank of cone race honers.

Following another washing, the cones drop to the automatic cone race diameter gages, from which they are lifted to a bank of six accumulators. Here they wait for the cups with which they are to be mated.

### Cup Line:

The cups are lifted from the furnace to an accumulator, from which they drop to a surface grinder, are lifted to another accumulator, then go through an O.D. rough grinder and an O.D. finish grinder. Next stop is an accumulator which feeds a recirculating line to a bank of cup race grinders. From here they go through the same washer that the cones do after the cone race honing operation, but in a separate track, and are lifted to an accumulator. Here they are fed, through a recirculating line, to a bank of cup track honers; then to automatic gages, which drop out the rejects; and are carried to a bank of three accumulators.

### Assembly:

At this point, the cones are in the six-accumulator bank and the cups are in the three-accumulator bank. With the multiple bank arrangement, it is possible to segregate different models of components as the lots come along the line. And this is just what is done. Two styles of cones and two styles of cups are made on the



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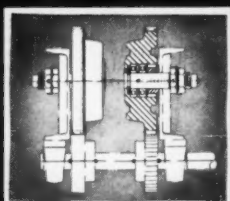
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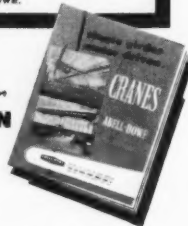
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Integrated Production Line. This makes possible four different combinations of components.

At the three automatic assembly machines which come after the accumulator banks, the operator dials the combination he wants, and the required clearances. Automatically, the proper cone and cup accumulators are tapped and the components are fed side by side through a washer to the assembly machines. Mounted on the machines are conical hoppers containing the balls (always obtained from New Departure's nearby plant in Bristol). The hoppers are divided vertically into perhaps twenty segments, containing balls larger or smaller than the nominal diameter in .00050-in. increments.

Aside from the need for very tight sphericity and circularity in ball bearings, actual dimensions are not nearly so important as clearances. The automatic assembly machines gage the dimensions of the cup and cone to be mated, then select the appropriate-sized balls for the required clearance. They then assemble the cup, cone and balls, and insert the retainer ring which holds the balls in place. The assembly machines then feed the two accumulators, one of which is divided so it can keep two separate types of bearings. Three conveyor channels take the segregated bearings through washing, to inspection island, to washing again, and to the visual inspection bench. Then they split off. One line carries open bearings; another carries those which are to receive metal shields; the third carries those to receive rubber seals.

The open bearing line goes to a noise test bench, a washer, a grease application machine, and finally to the wrapping and packing bench.

The metal-shield bearing line goes from the visual inspection bench to a press where the shields are applied; then to a diameter inspection station, then a noise test bench, a greasing station, and to wrapping and packing.

The rubber-seal bearing line goes to a noise test bench, then a seal assembly press, a greasing station, then to wrapping and packing.



Pallet fork: 1000-lb. capacity, adjustable tines

handle all materials with one rig!



3 buckets: 11 to 18 cu. ft., 1000-lb. capacity

## CASE. *Utility* LOADER



Crane boom: 15' lift, to 8'4" reach

**\$2598<sup>00</sup>**  
F.O.B.

Add freight, taxes, installation.  
Price subject to change w/o notice.

In 5 minutes you can switch from handling one kind of material to another, with versatile Case *Utility* Loader and multiple attachments. Speed and easy maneuverability cut travel time. Complete line of tools for grounds maintenance, mowing, sweeping, snow removal and other around-plant chores. Choice of lug, or industrial tread tires. Easy monthly lease or purchase plans.

CU-L-121

Write, wire, or phone  
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**CASE®**

J. I. CASE CO., RACINE, WIS.  
DEPT. F1609

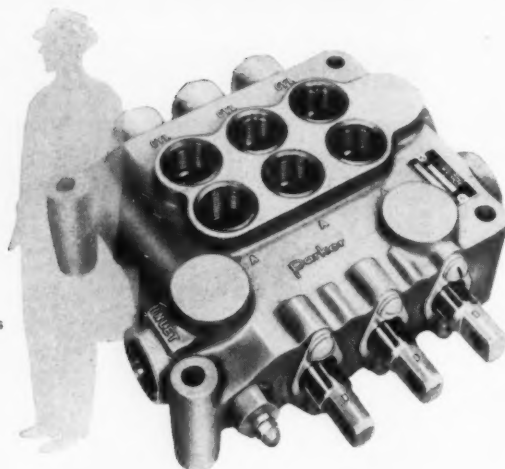
Circle 41 on Reader Service Card for more information

**Parker "Krimp-Lok" Hose Assemblies**  
(by Parker Fittings and Hose Division)



**HANNIFIN Mobile Hydraulic Cylinders**  
(by Hannifin Company - division of Parker-Hannifin)

**Parker Control Valves**  
(by Parker Hydraulics Division)



*Time-saving service for mobile equipment builders...*

### 3 PARKER-HANNIFIN HYDRAULIC CIRCUIT COMPONENTS

see them at the show in 1 booth  
discuss them in your office with 1 salesman

At the Material Handling Institute Exposition, you will see a full range of high-precision Parker control valves known industry wide for fine metering, for delicate control of heavy loads. You will see Hannifin power cylinders that efficiently and speedily convert hydraulic power into load-moving linear motion. Also a complete display of new Parker "Krimp-Lok" permanent-end hose assemblies that round out the 3-in-1 Parker-Hannifin service.

Also, if you need seal information, Parker Seal Company will have Parker O-rings and the new Parker "Gask-O-Seals" and "Stat-O-Seals" in this same Parker-Hannifin booth.

If you can't make the show, a Parker-Hannifin sales engineer representing all three divisions serving the mobile equipment field will discuss your mobile hydraulic problems with you at your own office. Just write to E. C. Davis, Parker-Hannifin Corporation, 17325 Euclid Avenue, Cleveland 12, Ohio, to arrange for a visit from your



Booth No. 1510

### PARKER-HANNIFIN MOBILE HYDRAULIC SPECIALIST

REPRESENTING 3 DIVISIONS OF PARKER-HANNIFIN CORPORATION

Circle 140 on Reader Service Card for more information

MATERIAL HANDLING ENGINEERING



# CATALOGS and BULLETINS

offered in advertisements in this publication

**Power Shift Transmissions** . . . Peak power output for heavy-duty equipment is provided by Hydra-Drives, units that combine a torque converter and 4-speed transmission in one compact package. Transmission and Axle Division, Rockwell-Standard Corp.  
**Circle 500 on Reader Service Card**

**Selective Automatic Counting** . . . And sorting of mixed products are now possible with Atronics 400 Series transistorized carton selector equipment. Your material handling can be completely modernized at low cost. Literature available from Atronic Products, Inc. tells how to make your operation a model for the industry.  
**Circle 18 on Reader Service Card**

**Low Speed Drives** . . . A complete line of compact mechanical power transmission equipment in ratings from  $\frac{1}{8}$  to 200 hp is available on short delivery. The line includes shaft-mounted speed reducers, helical speed reducers, all-motor gear motors, and integral gear motors. General Electric Co.  
**Circle 499 on Reader Service Card**

**Engineered Conveyor Systems** . . . pallet loaders and unloaders, vertical lift conveyors, roller, belt, apron, pusher bar, spiral and slat conveyors are all discussed in information available from Alvey Conveyor Mfg. Co.  
**Circle 7 on Reader Service Card**

**Sideload Traveloader** . . . stacks, carries and delivers at speeds up to 40 mph with one man operation. Stacks up to 12 feet high and operates easily in aisles no wider than 10 feet. Available in gas, diesel or electric. Capacities from 4,000 to 30,000 lbs., with power steering and power brakes. Baker Industrial Trucks, A Division of Otis Elevator Co.  
**Circle 26 on Reader Service Card**

**Industrial Engines** . . . Information on their complete line is available from Continental Motors Corp.

**Circle 48 on Reader Service Card**

**Hand Chain Hoist** . . .  $\frac{1}{4}$  to 10 ton capacities. One ton model weighs only 36 lbs. Made of tough aluminum alloy. Lifetime lubrication. Chisholm-Moore Hoist Div., Columbus McKinnon Chain Corp.  
**Circle 43 on Reader Service Card**

**More Than 4,000 Models** . . . of casters and wheels are available from Darnell Corp., Ltd. and a catalog is available upon request.

**Circle 58 on Reader Service Card**

**Forward and Reverse Movement** . . . on the Hyster Space-saver 30, 40 and 50 is controlled by one pedal operated by the right foot. Precision inching is controlled by a pedal on the left side. The automatic parking brake is push-button controlled. Driver's hands are free for full-time steering and load control.

**Circle 97 on Reader Service Card**

**Power Dock** . . . Has unique 30 inch in and out motion plus 24 inch up and down, to serve any type truck quickly and safely. Hartman Metal Fabricators, Inc.  
**Circle 93 on Reader Service Card**

**Cut Rack-Building Time 60%** . . . with Rackmaster fittings. No threading or welding necessary. Pipe cutting is reduced to a minimum. Regular warehouse crews can build them and the pipe is 100% salvageable. The Hollaender Mfg. Co.

**Circle 95 on Reader Service Card**

**Semi-Live Skids** . . . floor trucks and skids are discussed in literature from Ironbound Box & Lumber Co.

**Circle 101 on Reader Service Card**

**Does the Work of Several Trucks** . . . The Dempster-Dinosaur is a system that employs giant containers up to 40 cubic yards and larger to handle bulk material, liquids, waste or finished products. One truck and driver can automatically handle a number of containers. Dempster Brothers,  
**Circle 60 on Reader Service Card**

**Steel Guard Tires** . . . by Goodyear have rubber-embedded barriers of steel cables locked firmly in place between plies to make them stand up under all kinds of rough treatment. Full information is available from Goodyear Tire & Rubber Co.

**Circle 87 on Reader Service Card**

**Lighter Gauge, Flexible Strapping** . . . Brainard's Hi-Flex features superior flexibility for better package conformity. Gives more feet per pound and handles easier and faster. Available in  $\frac{3}{4}$ " and  $1\frac{1}{4}$ " widths.

**Circle 33 on Reader Service Card**

**"20 Shipping Room Fastening Jobs"** . . . is the title of a booklet by Bostitch, Inc. It describes their line of staples and stapling machines and how they can help you.

**Circle 32 on Reader Service Card**

**Light as a Feather Hand Trucks** . . . constructed of one inch chromolly tubing and hi-tensile steel toe plate. A catalog on their complete line is available from Master Tank & Welding.

**Circle 114 on Reader Service Card**

**Power Truck Attachment** . . . for handling drums with a fork truck may be used with the forks left on or removed from the truck. Drums can be handled

(Continued on page 166)

Make a note of this date—September 8th to 18th, 1959—10 a.m. to 6 p.m.

## THE INTERNATIONAL PACKAGING EXHIBITION

### World's largest packaging display

At 10 a.m. on Tuesday, September 8th, 1959, in the Grand and National Halls at Olympia, London, opens the world's largest display of packaging design, methods and materials. It will run for ten days and remains open until 6 p.m. Don't miss your chance to see this great Exhibition.

- **THE NEWEST:**
- **MACHINERY.** A large display of British and foreign machinery designed to improve every packaging operation at less cost.
- **METHODS.** To save labour and costs, increase output, reduce handling, economise in storage, and to ease stock control.
- **MATERIALS.** To simplify packaging, afford better protection in transport, and to effect saving in labour costs.
- **IDEAS.** To solve many of your problems in relation to production, marketing, advertising and selling.

Organised by PROVINCIAL EXHIBITIONS LIMITED

In association with F. W. BRIDGES & SONS LIMITED. Planned in collaboration with the INSTITUTE OF PACKAGING, LONDON.

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**OLYMPIA** GRAND AND NATIONAL HALLS **LONDON**  
ENGLAND

### THE ONLY UNITIZED SLIDE BED BELT CONVEYORS IN WIDTHS from 1 to 48"!

All-Purpose conveyors that grow with your needs. All components are standardized allowing conveyors to be lengthened or shortened as the need requires. A full range of widths, plus standardized parts, permits complete flexibility within your plant.

Mail coupon for detailed information

ISLAND EQUIPMENT CORP.  
P.O. BOX 380276 • MIAMI 38, FLORIDA

Please send information on the following:

- ☐ STANDARD UNIT
- ☐ NARROW BELT UNIT
- ☐ OTHER CONVEYORS—PLEASE LIST

Company.....  
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#### Unitized STANDARD UNIT

The perfect mechanized table for assembly, inspection and packaging operations. Movable or stationary—available in steel or stainless steel with fixed or variable speed. 8", 12", 16", 18", 24", 30", 36", and 48" widths.



#### Unitized NARROW BELT UNIT

A versatile, low-cost unit for conveying lightweight articles for assembling, inspecting or packaging operations. Easy to install — economical to operate. 1", 2", 3", 4", 5", and 6" widths.

See our exhibit at Booth 1423—M H I Exposition  
Circle 102 on Reader Service Card for more information

Circle 95 on Reader Service Card for more information

You can  
**BUILD  
CHANGE  
EXPAND  
MOVE**  
your storage racks  
with only a  
**HEX KEY,  
HACKSAW  
and  
RACKMASTER®  
FITTINGS**

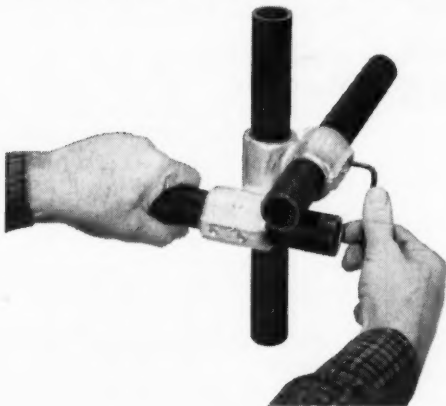


**RACKMASTER FITTINGS** cut rack-building time as much as 60% by eliminating threading and welding. They cut other rack-building costs, too—

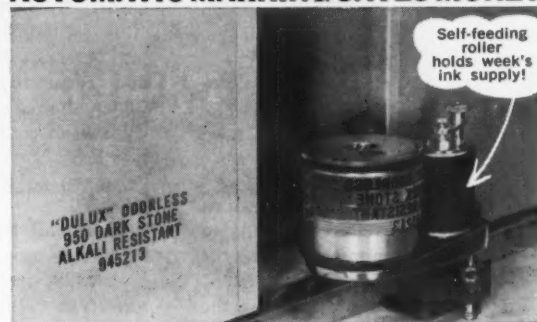
- pipe is 100% salvageable
- pipe-cutting is reduced to a minimum
- regular warehouse crews can build racks
- slip-on feature simplifies design and construction

**RACKMASTER** is stocked by leading distributors. Write for details on Rackmaster and multi-purpose NU-RAIL Fittings Bulletin 14E Dept. 22-FL

THE HOLLANDER MANUFACTURING CO., 3841 Spring Grove Ave., CINCINNATI 23, O.



Circle 88 on Reader Service Card for more information  
**AUTOMATIC MARKING SAVES MONEY**



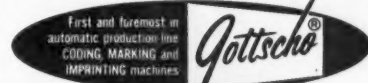
**New ROLACODER conveyor and case-sealer attachment marks boxes, cartons, drums, filled bags automatically**

**Saves on container printing costs...eliminates hand-stamping...insures faster identification**

- Low-cost... pays for itself in months
- Compact... works by friction... requires no troublesome adjustments
- Install it yourself on any conveyor, case-sealer, etc. to mark from side or top
- Not a gadget — beautifully designed and precision-made to give consistently dependable performance, uniform impressions
- Patented type base holds type and dies securely, makes copy changing easy
- Spots imprints accurately in any desired location
- Many thousands in use by all industries

Models to suit every need... including twin-action units for marking 2 or 4 sides of cases simultaneously.

Write today for Bulletin "ROL-3"



**GOTTSCHO** Dept. D  
HILLSIDE 5, N.J.

In Canada: Richardson Agencies, Ltd. • Toronto & Montreal

## SUPPLEMENTARY READER SERVICE CARD

Many readers have reported that their copy of **Material Handling Engineering** sometimes arrives without the Reader Service Card. This may be caused by others in the plant who see the magazine first, tear out and use the card and pass the magazine on. If this copy reaches you without a Reader Service Card, use this supplementary coupon to obtain additional information from the manufacturer on any advertisements, new equipment, useful literature, etc.

**CAUTION:** This must be mailed first class in a sealed envelope.

PLEASE PRINT

June 1959. Do not use after 9-15-59

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PLEASE SEND ME ADDITIONAL INFORMATION AND LITERATURE ON ITEMS CIRCLED BELOW.

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JUNE, 1959

## CAPCO DOCK COVERS GIVE YEAR 'ROUND PROTECTION

CAPCO Dock Covers completely enclose the space between car and building doorways protecting loading and unloading during bad weather... preventing accidents... insuring against loss of heat or refrigeration... 51 different models in any size for every loading problem.



Write for literature and name of nearest distributor.

**CAPCO**

622-24 PROSPECT AVENUE • KANSAS CITY 24, MISSOURI

Circle 40 on Reader Service Card

## CATALOGS & BULLETINS

*Continued*

singly or in multiples. Marvel Industries, Inc.

Circle 115 on Reader Service Card

**The Flow-Mation System** . . . is said to reduce handling to an absolute minimum both at the machine operation and in traffic and inventory. Full details on the system are available from The Powell Pressed Steel Co.

Circle 142 on Reader Service Card

**Worm Drive Hoists** . . . in capacities from 1/4 to 10-ton include such features as sure braking action, fully enclosed motor and gearing for clean, quiet operation and greater compactness for close headroom and safer action. Electrolift, Inc.

Circle 70 on Reader Service Card

**Monorail Systems** . . . move loads safely overhead eliminating both traffic jams in aisles and interference with production. For use inside and out. American MonoRail Co.

Circle 9 on Reader Service Card

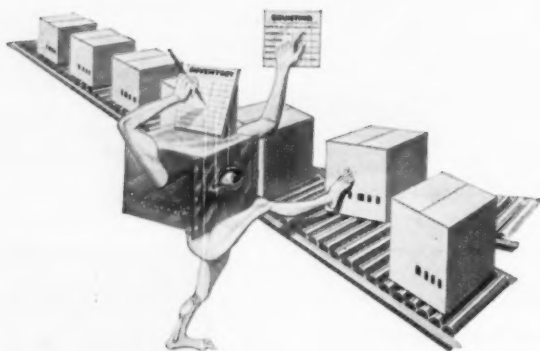
**Difficult Problems** . . . of load, shock, fatigue and abrasion with minimum maintenance and all around satisfaction can be solved by Diamond roller chains. Bronze and stainless steel are available for corrosive conditions. Circle 62 on Reader Service Card

**Convenient, Movable Power Sources** . . . for cranes and hoists, production lines, conveyor assembly lines, moving test lines, portable and machine tools, lighting, etc., are provided with Feedrail systems. Feedrail Corp.

Circle 80 on Reader Service Card

**NEW**

## AUTOMATIC HANDLING OF PACKAGED GOODS



Reads printed codes automatically.

SELECTIVE automatic counting and sorting of MIXED products are now possible with Atronic's 400 Series transistorized carton selector equipment. Your materials handling can be thoroughly modernized at low cost.

Make your operation a model for the industry . . . a point of company pride . . . and a new source of company profit. Write today for details.

**ATRONIC PRODUCTS, INC.**  
BALA CYNWYD, PENNA.

AN AFFILIATE OF GENERAL ATRONICS CORPORATION

Circle 18 on Reader Service Card for more information



**The Heavier the Load, The Tighter The Grip** . . . on the Wedge-Lock parts storage units by the Berger Division of Republic Steel Corp. Wedge-Lock construction includes a post that will not buckle, a concealed sway-proof joint, and a reinforced shelf that does not sag.

Circle 149 on Reader Service Card

**"What to Expect from Wirebounds"** . . . is a booklet from Wirebound Box Manufacturers Association. It discusses the many advantages to be gained through the use of wirebounds.

Circle 189 on Reader Service Card

**Wheels and Casters** . . . Grooved wheels, steel, iron, rubber, Durothane, Formica, and canvas cushion wheels are all discussed in literature from Divine Brothers Co. These same types are also available in a complete line of rigid and swivel casters.

Circle 66 on Reader Service Card

**The New Crab Truck** . . . by Automatic Transportation Co. can carry bulky, odd-shaped loads across its forks and move sideways down the aisle. Placing and positioning loads is done by a reach-type fork attachment which can swing the load 30° each side of center. In 2,000 and 4,000 lb. capacities.

Circle 19 on Reader Service Card

**Hand Pumps** . . . for industrial liquids. Help prevent waste, eliminate slippery floors and liquid accumulation. Delivers 20 gallons per 100 back and forth strokes. Tokheim Corp.

Circle 173 on Reader Service Card





## NEW EQUIPMENT SECTION

### Automatic Loading Ramp

The "Docklevler" is a completely automatic, truck activated loading ramp. It has no motors, hydraulic devices or controls. Truck backs in against its twin pusher arms extending out front. This raises the ramp to maximum height. Here it pauses for a moment, then lowers automatically until its lip rests on the truck bed. Constant contact with the truck bed is assured through full floating, self-adjusting action, says the manufacturer.

*T & S Equipment Co.*

Circle 401 on Reader Service Card for more information



### Strapping Kit Speeds Lightweight Loads

This complete round steel strapping kit is designed to reinforce, seal, or bundle small shipping cartons, for office and shipping room. It's an ideal money-saving way to close packages where heavier types of strapping equipment would be impractical. The kit is complete with a lightweight, compact, single stroke steel strapping unit, using 18½ gauge copper coated steel strapping. It contains approximately 2,500 feet of strapping in an easel fibre carton. An auxiliary hand cutter is included. The compact unit tensions and ties the round steel strapping with a single stroke of the lever. The entire operation takes just a few seconds to complete. The seal is neat and strong, and assures safe arrival of packages with complete protection against pilferage and concealed losses. The strapping, in its special dispenser made of corrugated board, is easy to dispense, easy to carry from one location to another, and stays clean.

*Inland Wire Products Co.*

Circle 402 on Reader Service Card for more information

### Boom Controls Awkward Loads Easily

Ease of control of the Rotelift boom is a feature of the "Go-Devil" tractor crane. By fingertip hydraulic control the operator can rotate the boom 360 degrees continuously, raise it from horizontal to 750 degrees, extend or retract it. Dual acting controls permit these operations to be done simultaneously. The crane, Model 20RM2, has a capacity of 2000 pounds. It is designed for in-plant and yard handling of odd sized or shaped pieces of material. The Model 20RM2 is 102 inches long and 54 inches wide. Its boom extends 8 feet 6 inches; cable speed is 50 feet a minute. The Model 20RM2 has a 54 x 54 inch platform to carry the loads lifted by the boom. In addition, platform space is available on one side to permit handling of pipe or other long objects. The Rotelift boom is also available as a unit for mounting on trucks or on stationary installations.

*Drott Mfg. Co.*

Circle 403 on Reader Service Card for more information



## NEW EQUIPMENT SECTION

### Strapping Tool Aid

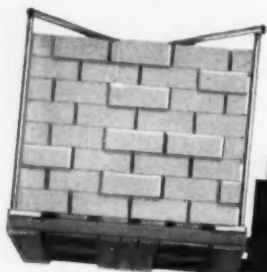
A traction dynamometer is part of a method of setting clutch tension in steel strapping tools. The dynamometer is anchored to one end of a sturdy table. A length of steel strapping is secured to the dynamometer and anchored to a grip at the opposite end of the table. The strapping tool is then applied and cranked until the dynamometer reading agrees with



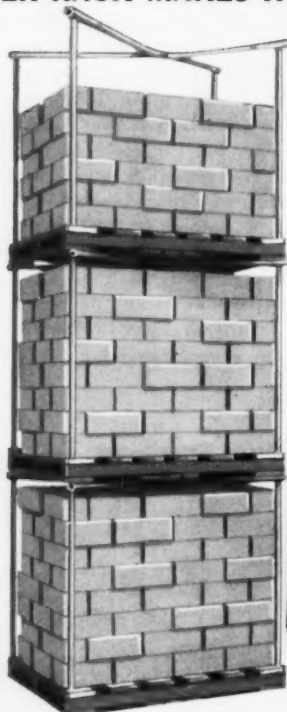
a predetermined clutch load. The clutch is then permanently set.

*W. C. Dillon & Co., Inc.*

Circle 404 on Reader Service Card



**TIER-RACK MAKES HIM**



Pat. No. 2,828,932  
Pat. No. 2,828,933  
and Pats. Pending



Circle 172 on Reader Service Card for more information

Visit Us in Booth 2309  
at the MHI Exposition

## A QUICK-CHANGE ARTIST

... He Alters Your  
Layout in Minutes



Reach solid-stowed or high-tiered items in a few quick moves... change your storage setup in a hurry... when you use portable Tier-Rack pallet stacking frames.

Put idle aisles and empty air space to work, too... gain up to 50% more storage room in your present floor area.

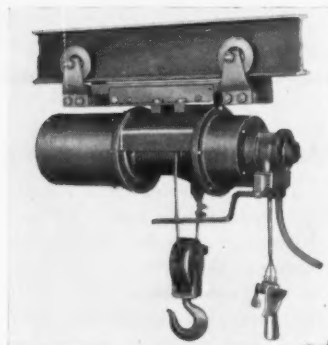
Send for booklet TR-8.

**TIER-RACK CORPORATION**

122 N. 7TH ST., ST. LOUIS 1, MO.

### Pneumatic Hoist

The "Detroitter" air hoist features a type PT, sliding vane, rotary air motor. The motor is self-contained and entirely en-



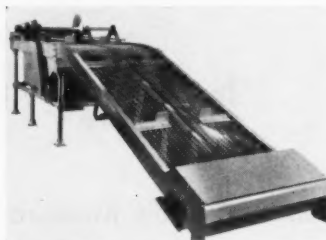
closed. A simple, air-operated piston actuates the brake, which is fully released while the motor is operating. A push-button type of control consists of a pilot valve suspended from the hoist by small pneumatic hoses.

*Detroit Hoist and Machine Co.*

Circle 405 on Reader Service Card

### Still Opening Bags the Old Fashioned Way?

Now you can unload multiwall bags the mechanized, economical way with the Autoslitter bag



opener. The Autoslitter is a completely conveyORIZED unit that slices the bags in half, dumps the contents into a hopper, and ejects the empty bags onto a separate conveyor. It takes any size bags. Feed conveyors are made of the standard Wir-O-Veyor woven metal mesh belts, available in a variety of metals and patterns. For sanitary use, exposed parts may be stainless steel. Speeds are easy to match with your existing conveyors. The basic Autoslitter is 7½ feet long and 4 feet wide. Capacity: 20 bags a minute.

*Wiretyer Corp.*

Circle 406 on Reader Service Card

# RUBBING SHOULDERS WITH THE BEST

The trade-marks pictured here represent manufacturers of lift trucks that have a demonstrated record of long life and rugged performance under a wide variety of conditions.

The technical know-how of these manufacturers who use the finest materials available plus rigid standards of quality control, have built trucks known the world over for efficient dependability.

We, of K-W Battery Company, feel that we are rubbing shoulders with the Best, because more and more manufacturers are using K-W Batteries with Piggy Back changers, the power combination that offers important, extra benefit-inherent characteristics that improve operating performance and lengthen service life at minimum costs.

*Get the full story, write us today.*

**See Our Display at Booth 1306**



**REVOLVATOR  
GO-GETTER**



**LEWIS-SHEPARD**



**YALE**



**K-W  
BATTERY COMPANY**

SKOKIE, ILLINOIS

America's Finest Industrial Battery and  
Original Manufacturers of C P U

## NEW EQUIPMENT SECTION

### Transfer Device Moves Containers Economically

An airlift roller has been developed for economical transfer of containers between railway cars, trucks, and platforms. It requires air for power, and can transfer a container in 10 minutes with no more than two men. Roller device has a nylon fabric reinforced rubber air bag. It is eight feet long, set on an aluminum roller car-

riage of the same length. It is covered by an aluminum sheet. The roller goes into each of the



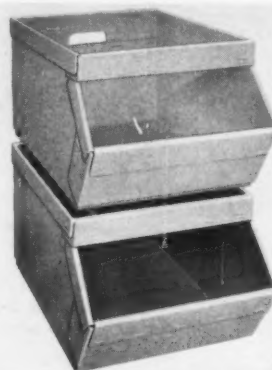
fork truck pockets under the containers. Air bags are inflated from truck's air supply or any convenient source. Pressure raises the

containers 6 inches or more, allow them to be rolled to the desired location by a hand winch or auxiliary hydraulic equipment. Carriages are hinged at two points to articulate.

*Standard Railway Equip. Mfg. Co.*  
Circle 407 on Reader Service Card

### Hopperfront Boxes

A hopperfront box is the answer to the problem of stockpicking from stacked tote boxes. This line of lightweight boxes is fabricated of Chem-Board, a material pro-



duced by chemically rigidizing heavy corrugated. Inside dimensions of the boxes illustrated (Stock No. J-120) are: 19 inches wide, 28 inches long, 13½ inches deep when stacked.

*Convoy, Inc.*

Circle 408 on Reader Service Card

*Terrifically  
THRIFTY  
Unlimited in  
UTILITY*



New (Model 734) Heavy Duty

## **CUSHMAN ELECTRIC TRUCKSTER**

Built to carry a half-ton payload plus operator and passenger, the three-wheeled Cushman 734 Electric Truckster is a versatile and penny-pinching performer. You save money, gain convenience in light hauling, plant supervision and security, warehouse service, personnel transportation, and many other jobs.

Particularly suited for applications where gasoline powered equipment is not desirable, the 734 Electric Truckster is easy to handle, easy to maneuver in cramped quarters.

Rigid unitized construction... heavy duty rear suspension... wedge type drive belts... a big 45½" x 61½" flat bed that can be equipped with stake racks... all add up to a rugged workhorse. Heavy duty batteries deliver up to 50 miles before recharging. Fiber glass cab is available as optional equipment.

Ask your dealer for **FREE** demonstration or write for illustrated literature

Sold and serviced nationally—  
replacement parts immediately available  
Dealer inquiries invited



A subsidiary of Outboard Marine Corporation  
LINCOLN, NEBRASKA

### **CUSHMAN MOTORS**

1051 No. 21st, Lincoln, Nebr.

Please send complete information on the 734 Truckster.

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

Circle 52 on Reader Service Card for more information

### Lightweight Stacker

A lightweight Transporter, Model WOAT, can handle either single or double deck block-type pallets or skids. The truck is available in 2000, 4000, and 6000 pound capacities. You can get various fork lengths and widths



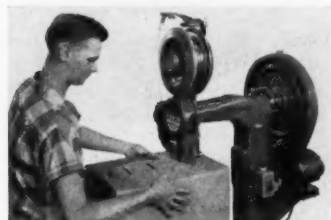


and lifting heights to suit all requirements.

*Automatic Transportation Co.*  
Circle 409 on Reader Service Card

### Wide Staples from Wire

The Ideal bottom-crown carton bottom stitcher drives staples with crowns up to 1 3/8" wide, formed from rolled wire. Model WS-1B-1240 is electrically driven, holds



a 25-lb coil of wire that produces 12,500 staples without reloading. Optional equipment is available to control the location of the staples. The manufacturer says these machines cut box closing time and cost in half.

*Ideal Stitcher Co.*  
Circle 410 on Reader Service Card

### Low Loader

The Speedcat Model R-9 Low Lift is only 30 inches high, from ground to top of hydraulic pump.



It has a lift of 21 inches from ground to bottom of bucket. The loader has nine horsepower, will exert drawbar pull up to 1300 pounds.

*Mead Specialties Co.*  
Circle 411 on Reader Service Card

### Bag Closing Made Simple

A "tape-over-seam" closure makes it easy to close tops of open mouth multiwall bags. It's done with the Style 30600 HZ



JUNE, 1959



Driver's seat lifts out, back tilts to bring engine and battery in easy reach.

## MOBILIFT quick, easy to service

Long life to your equipment demands regular and thorough servicing. That's why all service points in a Mobilift\* are in easy reach. Engine, transmission, 2-speed final drive, brakes, battery, hoisting and tilting mechanism and steering assembly are located by design to simplify servicing, not complicate it. Have you noticed the easiest to service equipment always gets the best service? Check over a Mobilift and see!

### AND NOTICE THESE INDUSTRY EXCLUSIVES

**MOBILMATIC\* with Inching Control**—has all the advantages of an automatic transmission PLUS! Inch truck while lifting load at any speed, or lift load while traveling according to the speed and need of the job.

**MOBILIFT CENTER LINE STEERING** is effortless steering. It is an engineering principle of easy steering to distribute vehicle weight straight down through the center line of steer wheels. By sticking to this principle Mobilift eliminates the need for expensive power steering.



**MOBILIFT HYDRALIZER\*** is a boon to the service man. No rear axle running through machine from side to side. Each of the two rear wheels is independently suspended. This means all 4 wheels are firmly on the ground when floor variations are as great as three inches.

For fastest operation in narrow aisles, ask for information on the MOBILIFT line of "stand-up" gas or LP-operated trucks. Here is low initial cost and real maintenance economy.

**WRITE FOR NEW FOLDER "MOBILIFT with inching control".** Here is the complete story of Mobilift "sit down" Industrial Trucks in the 2000-5000 lb. capacities.

**LAMSON**  
**MOBILIFT**  
CORP

EXPORT REPRESENTATIVES:  
Canada: The Canadian Fairbanks-Morse Co., Ltd.  
Caribbean Area and Mexico: W. D. Blood & Co., Inc., New York City  
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882 S. E. Main Street  
Portland 14, Oregon

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Circle 108 on Reader Service Card for more information

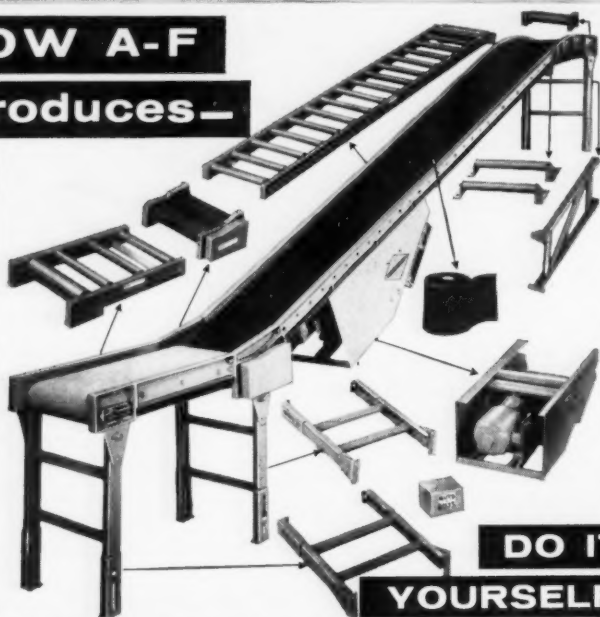
## NEW EQUIPMENT SECTION

closer. This machine applies a strip of pressure sensitive tape over the sewed closure. No heat or glue needed. The closure is air-tight and moistureproof. No need to use a filter cord in the sewing. Tape may be from 2 1/8" to 1 1/2" wide. This sewing head can be mounted on all existing frames that normally use Style 80600 H heads.

*Union Special Machine Co.*  
Circle 412 on Reader Service Card

## NOW A-F

## Introduces—



**DO IT  
YOURSELF**

# BELT CONVEYOR COMPONENTS

## Easily Assembled into Custom Units!

SEE! HOW EASY IT IS! Even unskilled personnel using common mechanic's hand tools can now erect level, inclining, or declining roller bed belt conveyors of any desired length by using A-F's new "E-Z Bild" belt conveyor components.

A-F "E-Z Bild" units are available in belt widths of 10, 14, 18 and 22 inches.

A-F pre-engineered Belt Conveyor Components include

straight intermediate sections, top curves, feeder sections, drives, take-ups, belts, idlers, floor supports and ceiling hangers. Side frames permit bed rollers to be set high or low. We can also supply reversible end and center drives in a wide range of speed and horsepower ratings, also live roller components.

Need a belt conveyor or live roller conveyor soon? Write, wire or telephone — today



THE ALVEY-FERGUSON CO. • 435

DISNEY ST. • CINCINNATI 9, OHIO

Circle 8 on Reader Service Card for more information

## A-F ENGINEERED CONVEYING SYSTEMS

Also Pre-Engineered Conveyors—  
Wheel, Trolley, Roller, Belt  
Metal Cleaning and Processing Machines

## Heavy Duty Sweeper

The Model 80-E sweeper is equipped with a 24-volt, 365 amp. hour battery. According to the manufacturer, it sweeps 8 hours on a battery charge. Traveling at speeds up to 4.5 mph, the machine has a maximum cleaning path of 53 inches, including side brush for flush-with-wall sweeping. Cylindrical main brush is 42 inches wide. The sweeper has two 1 horsepower DC motors, one for propelling, the other for sweeping, in combination with an interbalanced

brush-and-vacuum system. Since brush speed and vacuum suction are constant, this allows the ma-



chine to travel slowly with no loss in sweeping efficiency.

*G. H. Tennant Co.*

Circle 413 on Reader Service Card

## Big Tractor Shovel

The Model H-120 "Payloader" tractor shovel has a recommended load carrying capacity of 12,000 pounds. Buckets from 3 to 6 cubic yard capacity are available. Maxi-



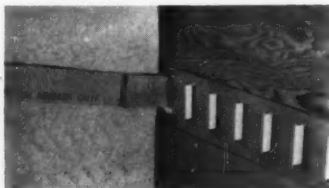
mum height of raised bucket is 19' 2 1/2" with clearance to center of hinge pin, 14' 7 1/2". With the bucket dumped at 50 degrees, clearance under the bucket edge is 10'10" and the forward reach from the front tire is 3'6". This tractor shovel is powered by a turbo-charged Cummins NRT-6-BI diesel engine which develops 300 hp at 2100 rpm.

*The Frank G. Hough Co.*

Circle 414 on Reader Service Card

## Controls Cargo

A system of truck cargo control uses tension-locking web straps, fittings, and a track installed in the



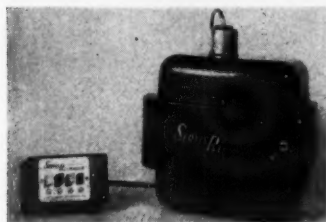
trailers. A steel track runs horizontally in rows along the inside walls of the trailer. A simple fitting attaches web strap assemblies to the track. There are steel end socket fittings for a 2 x 4 second deck beam or shoring bar.

*General Logistics Div.,  
Aeroquip Corp.*

Circle 415 on Reader Service Card

### Control Truck Speed

The new Servis Speed Recorder keeps speed, time, and mileage records automatically for truckers. The unit can be mounted anywhere in the cab; speedometer and tach-



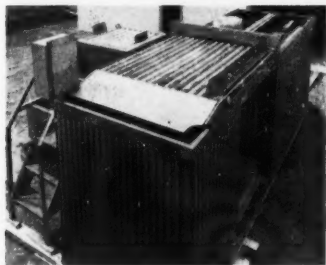
ometer need not be disconnected. An additional feature is a push-button speed control; as the driver travels he can punch buttons marked for specific speed limits. If he exceeds that speed a red warning light goes on. Another model of the speed recorder charts engine speed in revolutions per minute as well as travel time.

*The Service Recorder Co.*

Circle 416 on Reader Service Card

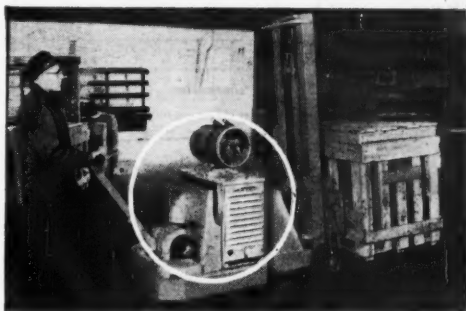
### Bag Palletizer

This automatic palletizer will stack bags on any type of pallet and requires no operator. Its operating parts consist of a motor-



driven roller table, an elevator, and an automatic ram. The roller table accepts and positions the bags. When a pattern is complete the table moves from under the pattern and automatically stacks it on the elevator below. The elevator descends on position as each

## Get the Advantages of READY-POWER on Your Electric Industrial Trucks



### Get Live Power for Walkie Trucks

Ready-Power's popular ban-tam model "W" is equipped with dependable 12-volt automotive-type starting and ignition. Variety of idling speeds and easy accessibility make it ideal for all walkie trucks as well as rider trucks up to 2,000 lbs.



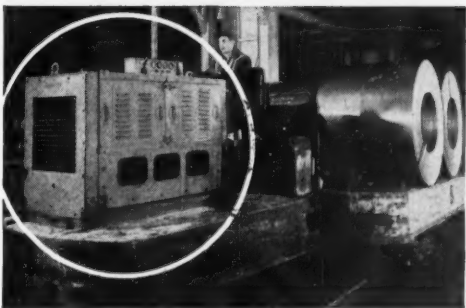
### Work Your Fork, Platform, Tractor Trucks 'Round the Clock

Ready-Power gas-electric and LPG-electric units give materials handling trucks continuous, full power all the time. Slowdowns due to power fatigue are eliminated. The simple, all-electric control and live response make Ready-Power-equipped trucks rate high with truck operators.



### Energize Lift Magnets on Your Electric Trucks

In the application shown at the left, the Ready-Power unit not only powers the truck, but also energizes the lift magnet for handling scrap metal. Ready-Power units are removable for shop adjustment while a spare keeps trucks working.



### Get Diesel Electric for Lowest Ton-Mile Costs

Take a tip from the owners of industry's biggest trucks . . . power them with Ready-Power diesel-electric for maximum stamina, dependability, and lowest operating costs. Ready-Power offers power for every size and make of electric truck,

**Your Truck is No Better than its Power . . . Write for Information  
on Ready-Power gas-electric, LPG-electric, and Diesel-electric Units**

## READY-POWER

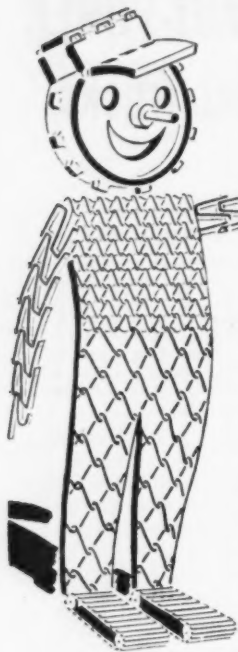
The READY-POWER Co., 3838 GRAND RIVER AVE., DETROIT 8, MICH.

Manufacturers of Gas and Diesel Engine-Driven Generators and Air Conditioning Units; Gas and Diesel-Electric Power Units for Industrial Trucks

Circle 148 on Reader Service Card for more information



Circle 54 on Reader Service Card for more information



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## To Whom money May Concern:

If your production costs are higher than they ought to be, you very likely can do something about it. Often one change in a method or process can make the difference between loss and profit. We'd like a chance to consult with you and see if such a change in method won't improve your profit picture. (It certainly has paid off for many other firms). The best part is, that it won't cost you one cent to find out. Just clip the attached coupon and mail it. When you do, one of our trained conveyor belt representatives will visit you to discuss and examine your particular problem and offer suggestions that will show you how Cyclone Metal Processing Belts may cut your production costs below the ulcer level. These suggestions will be tailored to YOUR problem . . . and no obligation. How can you lose? Do it, today.

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for  
**HANDLING DRUMS**

with a  
**POWER  
FORK TRUCK**  
WITH FORKS  
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Simple, automatic, mechanical handling of any size or type of drum—single or multiple.



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2226 CLEVELAND ST., EVANSTON, ILLINOIS

Circle 115 on Reader Service Card for more information

## NEW EQUIPMENT SECTION

layer of the stack is added. When a stack is complete a ram pushes the stack off the elevator for pick up by a fork truck, conveyor, etc.

Miller Engineering Corp.

Circle 417 on Reader Service Card

## Controls Batching

Batchplug is a system of formula changing in automatic batching equipment. Each standard Batchplug is a self-contained formula,



which provides complete preset control for up to 10 ingredients. A screw driver is the only tool required to set the Batchplug for proper control over any batching operation. About the size of a cigarette pack, each Batchplug has an individual nameplate for quick identification.

The Howe Scale Co.

Circle 418 on Reader Service Card

## Low Lift Redesigned

The Powerox Model PG electric platform low lift truck has been redesigned. Its new features include high underclearance obtained by single frame construction



and 6-inch full hydraulic lift. It is claimed that this makes the PG ideal for moving over steep ramps, keeping the truck from hanging up on the ramp peak. The PG's new drive gear is constructed as a unit, with motor, transmission, and drive wheel mounted in a column.

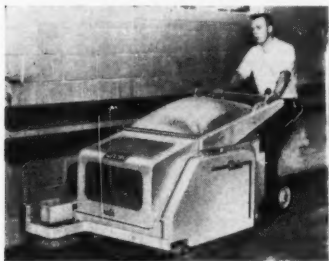
Barrett-Cravens Co.

Circle 419 on Reader Service Card



## New Sweeper Line

According to the manufacturer, models CS-27 and CS-36 are the first of its complete power sweeper line. The 27 sweeps up to 35,000



sq. ft. an hour and the 36 covers up to 50,000 sq. ft. A feature of this line is a forward-stop-reverse handle bar that provides fingertip control and eliminates shifting of gears. A removable dust bag evacuates dust from the entire width of the sweeper, yet is compactly integrated in the sweeper design.

Clarke Floor Machine Co.

Circle 420 on Reader Service Card

## Detachable Power

The Hydriver 20 is a portable power unit that can be attached to many types of wheeled equip-



ment. It will move a 2000 pound load at 2 mph. The Hydriver can be bolted to a vehicle or attached by a quick-disconnect arrangement.

R.H. Corbett & Co. Ltd.

Circle 421 on Reader Service Card

## Double Lock Caster

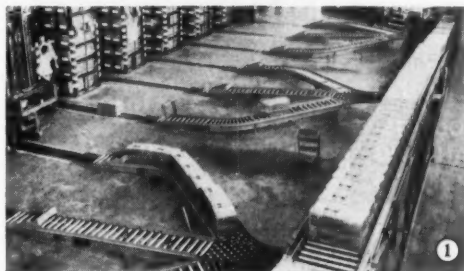
The CL900 series of scaffold casters has load capacities from 175 to 500 pounds. This stem-type caster has a simultaneous locking device that prevents both rolling and swiveling. The all-steel dual-

# Need Automation?

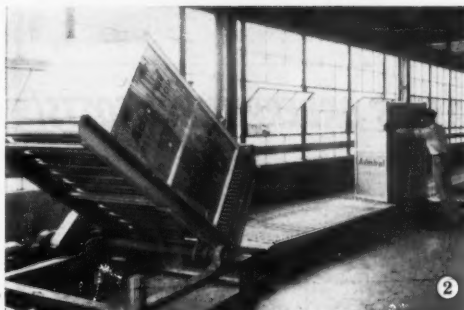


YOUR ANSWER IS:

## BUSCHMAN CONVEYORS

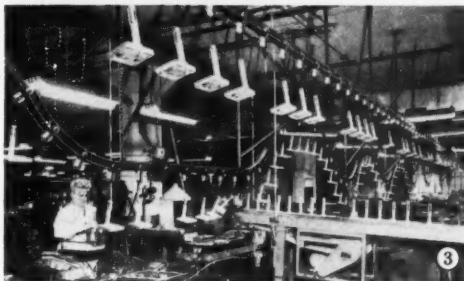


Whatever your handling problem Buschman makes low-cost production a reality. Buschman experience-engineered conveyors give you low initial and operating costs with proved dependability. Here are some typical examples.



1 Nearly ten million pieces each month are handled and shipped by a leading bearing producer's computer-controlled warehouse equipped with Buschman Wheel & Roller Conveyors.

2 Up-enders, down-enders and special units for increased handling efficiency are easily integrated into standardized conveyor systems for major appliance makers.



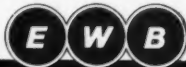
3 Overhead trolley cable conveyors carry light to medium weight loads thru all operations at convenient heights in this modern manufacturing plant.

What is your problem? Remember, Buschman offers the most complete range of conveyors to save time and cut costs.

Write  
Today  
for  
literature



Every Way Better



**THE E. W. BUSCHMAN CO.**

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C-354-EWB

CONVEYORS FOR EVERY INDUSTRY

Circle 35 on Reader Service Card for more information

**NEW!** FROMMELT  
"PERMA-DOX" DOCK  
SHELTER SEALS OUT  
WEATHER... SAVES  
REFRIGERATION...  
WITHOUT MOVING PARTS!

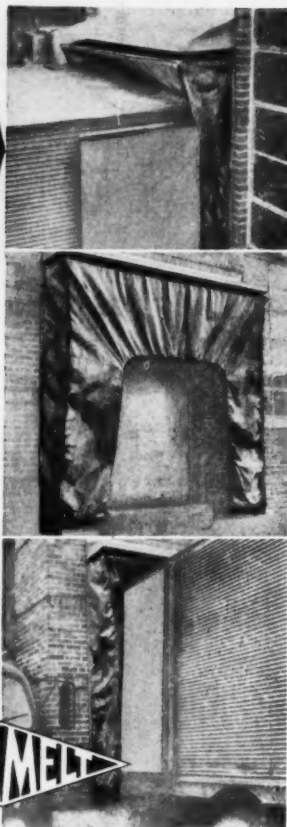
Here is a brand new concept in dock shelters... permanently installed protection that practically eliminates maintenance... has no moving parts — No operation required. Elasticized front, cape cover, with adjustable head curtain snugs out the weather on any height or width of truck as it backs into the dock. Fits docks equipped with bumpers projecting 12" or less. Available only in Froprene.

Write for complete details and prices.

SEE THESE FAMOUS PRODUCTS  
AT THE MATERIALS HANDLING  
SHOW... BOOTH 1812 & 1814

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## Quik-Pik® SLASHES ORDERPICKING COSTS!

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Because QUIK-PIK® live-storage-in-depth reduces aisle frontage, it cuts order picker's non-productive walking by as much as 75%.

Result: Substantial labor savings.

For complete information write:

**NORTH AMERICAN  
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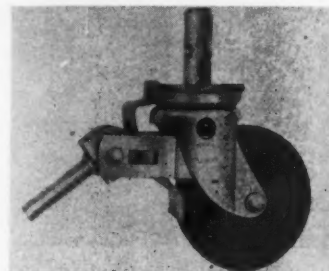


**Quik-Pik®** does the trick!

Circle 137 on Reader Service Card for more information

## NEW EQUIPMENT SECTION

action brake can be operated by foot or hand. A design feature of the CL900 series is a corrugated



top plate fully hardened for strength. It has a serrated edge for positive contact with the brake shoe.

*Faultless Caster Corp.*  
Circle 422 on Reader Service Card

## Crane Boom

Here is a crane boom designed for bulky, heavy loads that cannot be handled easily with forks. The

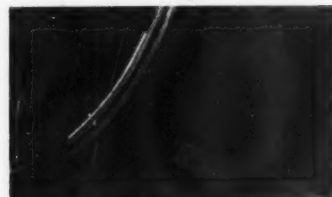


boom is hydraulically actuated, as is the line pull on the hoist. The crane boom may be fitted to any Gerlinger fork lift truck and can be detached so that truck may be operated with forks.

*Towmotor Corp.*  
Circle 423 on Reader Service Card

## Power Steering

You can get a power steering kit to fit almost any model of gasoline powered fork lift truck. Con-



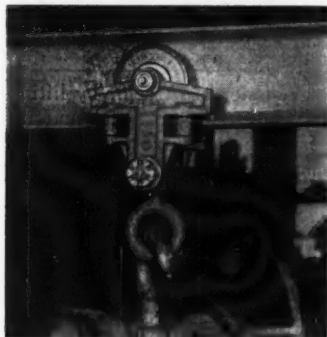
sisting of power unit and adapter, flow divider, hose and fittings, the device can be installed in the field in a few hours. You have to

remove only a small section of the truck steering shaft and tube. You need no special tools or welding. The unit's flow divider assures full-time power steering in addition to full power for other hydraulic accessories.

*The Ready-Power Co.*  
Circle 424 on Reader Service Card

### Two-Wheel Trolley

Here is a two-wheel trolley with 500 pound capacity. It is designed for straight and curved monorail systems. The trolley is

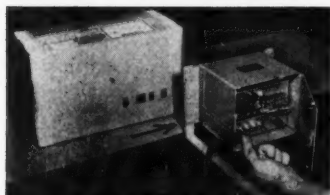


used on 4-inch I-beam rails. Load capacity can be doubled to 1000 pounds by using two trolleys with a load bar between. Standard applications of these trolleys include hoists, tool balancers, welding transformers, bridge cranes, and end trucks.

*Anchor Steel and Conveyor Co.*  
Circle 425 on Reader Service Card

### Carton Selection

You can select or sort any one of 30 different items by the Model 410 carton selector. Automatic selection of any case, box, or carton of any size or shape is

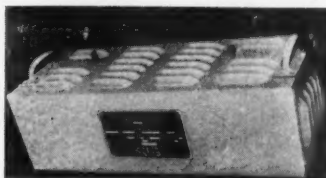


handled by means of a five-bar code. Selector switches may be set to recognize any of the markings as the cartons pass at speeds up to 180 feet a minute. The code may be printed on the cartons at the same time other printing is done; no special inks are required.

*Atronic Products, Inc.*  
Circle 426 on Reader Service Card

### Truck Has Charger

An automatic charger for electric industrial trucks rides on the battery. The silicon-rectifier charger,



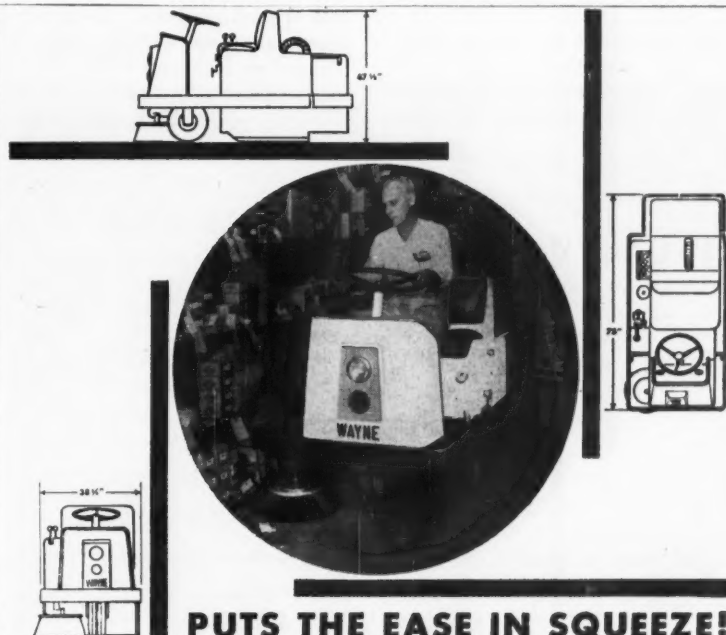
containing a transistorized control unit, need only be plugged into a 115-volt, AC wall outlet to charge the battery. The control

unit automatically varies the charging current as needed and tapers off the charge at the proper rate.

*Exide Industrial Div. of  
The Electric Storage Battery Co.*  
Circle 427 on Reader Service Card

### Bag Closure Is Fully Waterproof

The Moistite bag closure system makes possible an absolutely moistureproof closure on both ends of bags for ammonium nitrate and other products requiring



## PUTS THE EASE IN SQUEEZE!

### Wayne 704 Power Sweeper

Tight spots and congested areas are no problem in your plant with this Wayne Model 704 Power Sweeper. It's fast, extremely maneuverable and compact—designed and engineered to get in and out of tight areas inside or outside the plant. And . . . it has exclusive features\* you normally find only on larger Waynes—features that insure faster, easier, *better* sweeping under all conditions.

Even "tight" plant budgets are no problem with the Wayne 704! It's priced so low that you can now have all of the advantages of power sweeping with minimum outlay.

Find out now how easy it is to switch to modern power sweeping with the Wayne 704. Write today for all the facts—and ask about the Wayne Lease Plan that enables you to acquire a Wayne without capital investment!

- \* • Filter Vac Dust Control
- Vacuum Attachments
- Automotive Transmission
- Fully Powered
- Quick Broom Change



**WAYNE MANUFACTURING CO.**  
2316 E. Lexington St., Pomona, California

Show me a Wayne in action. ☐  
Send me descriptive literature. ☐

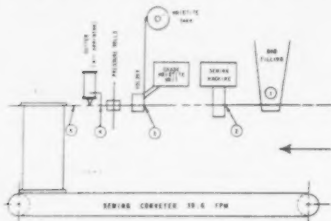
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Circle 185 on Reader Service Card for more information



## NEW EQUIPMENT SECTION

maximum moisture protection. The manufacturer offers multiwall paper bags made with this tape-over-sewn closure, as well as com-



plete equipment for closing them in your own plant so that both ends have complete protection. Moisture closures are impossible to tear.

*Chase Bag Co.*

Circle 428 on Reader Service Card

### Paper Bags Won't Sift

Super stepped-end multiwall bags are strong, flexible, and give a tight closure to protect powdery materials from sifting. Special overlapping plies are bonded at

the ends as well as along the longitudinal seam. The manufac-



turer claims these bags, used with specially designed packaging equipment, provides the highest tonnage per man-hour of any multiwall packaging system.

*St. Regis Paper Co.*

Circle 445 on Reader Service Card

### Rider-Walkie Tractor

The Worksaver rider-walkie electric industrial tractor is designed to speed order picking operations. Operated on a 12 volt battery, the tractor will travel at 5.6 mph in third speed. By brak-

ing through the motor, the opera-



tor can stop the tractor by lifting his foot from the pedal and releasing the speed control. With the operating handle full forward, the operator can walk the tractor.

*Yale Materials Handling Div.,*

*The Yale & Town Mfg. Co.*

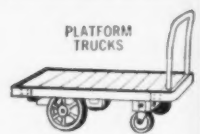
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### Cuts Line Pressure

The A-P-C (adjustable pressure control) conveyor is designed to



TRAILERS



PLATFORM TRUCKS



WHEEL BARROWS



LIFTJACK SYSTEMS



SPECIAL PURPOSE TRUCKS

**LANSING CO.**  
LANCO MATERIAL HANDLING EQUIPMENT

EXTRA HEAVY DUTY WESTERN HAND TRUCKS are built to last!

SELECTED HARDWOOD HANDLES

STURDY HARDWOOD FRAME with MORTISED CROSSBARS STEEL BOUND for ADDED STRENGTH

ALL PARTS REPLACEABLE

- Choice of wheels — Rubber, Steel, or Plastic with plain bearing or roller bearing.
- Over 50 models and styles of two-wheel Hand Trucks — Platform Trucks and Special Fabrication.

Send for FREE CATALOG.

**LANSING COMPANY, Lansing 3, Mich.**  
BRANCHES: BOSTON — MINNEAPOLIS

Circle 109 on Reader Service Card for more information

IN CHILLY BLASTS . . .

OR POURING RAIN . . .

Only DAZZO Dock Shelters provide quick and full protection for dock operations in bad weather. Less than full protection is merely money wasted!

DAZZO Dock Shelters adjust themselves automatically to different dimensions of railroad cars or trucks. They expand in seconds by gravity, without use of springs. They retract out of the way when not in use.

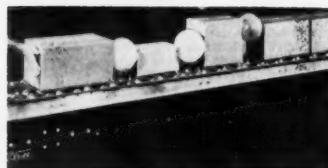
Save money and grief . . . write for the facts about DAZZO Dock Shelters

**DAZZO PRODUCTS, INC.**  
152 Bleecker Street, New York 12, N. Y.

Circle 207 on Reader Service Card  
MATERIAL HANDLING ENGINEERING



minimize accumulated carton line pressure. This unit is a wheel conveyor with a four-inch belt replacing the center load-bearing wheels. The belt provides the power. The conveyor is pressure-sensing

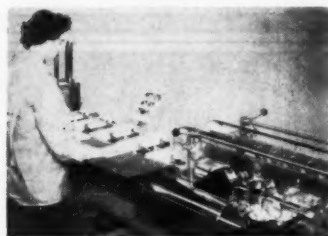


through a system of trigger wheels linked with pressure wheels. Through these wheels, optimum belt pressure is delivered to cartons of varying weight for movement. Pressure is removed from the cartons when accumulation is required.

*The Rapids-Standard Co., Inc.*  
Circle 429 on Reader Service Card

### Carton Revolutionizes Bacon Packing:

A rectangular box with a transparent window is completely sealed to provide a new type package for bacon. The product is re-



moved by lifting the sealed flap then sliding out the inner tray. Just slide it back for sealing after use. The machine that does the packing needs only one operator. It's adjustable for different sizes, regulated by fingertip controls.

*Lynch Corp.*

Circle 430 on Reader Service Card

### Rough Terrain Crane

This rough terrain crane can pick up and carry a seven ton load four and a half feet clear of the



front bumper. It can lift a four ton load fifteen feet clear of the front or side of the crane. The crane has four-wheel steering, and you can get four-wheel drive for

tough, off-the-road operation. A three-section boom telescopes hydraulically from 7 to 23 feet clear of the chassis. Standard features include Clark planetary drive axles and torque converter drive.

*Grove Manufacturing Co.*

Circle 431 on Reader Service Card

### More Colors Add New Uses for Tapes

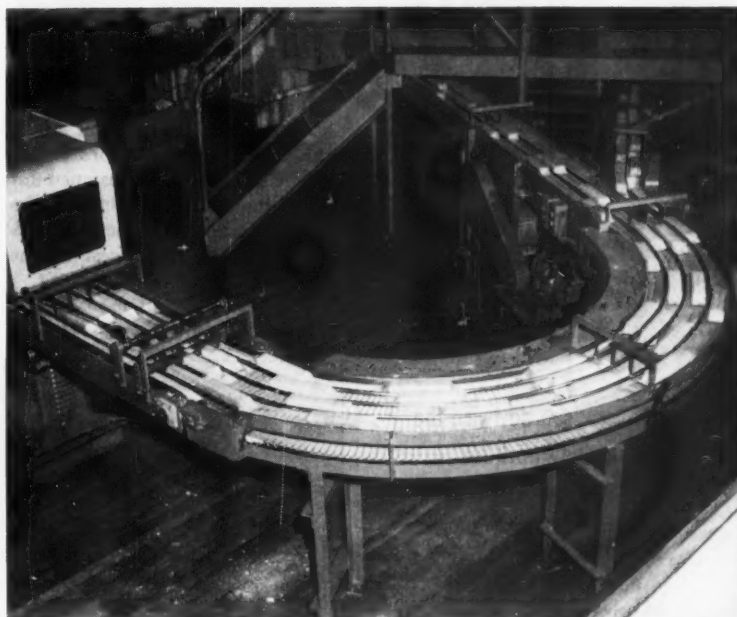
Metallized polyester film tapes in four new colors are now available. The colors are burgundy red, emerald green, royal blue,

and copper. They have the standard Scotch brand 1-mil backing and long aging, permanent bond properties. No. 850 tapes are ideal for decorative stripping, labeling, sealing, protecting, coding, masking, etc. Other colors in the line are clear, silver, and gold. Also available are No. 852 printable gold and silver tape with protective liner for the adhesive, and No. 853 transparent tape with solvent-resistant adhesive.

*Minnesota Mining & Mfg. Co.*

Circle 432 on Reader Service Card

## Industry Moves



Crackers turn corners on an Ashworth Belt

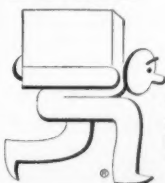
## on Metal Process Belts by ASHWORTH

Every industry has its product flow problem; frequently, it's one of "getting around a corner". Around the corner or straightline travel . . . whether it's crackers, popcorn, candy or nuts and bolts . . . there's an Ashworth Metal Process Belt to solve the problem.

Fabricated from any metal capable of being formed into wire, Ashworth belts provide a conveying medium permitting processing in transit through temperatures from -50° to 2100° F. Wherever your product must go—Ashworth Belts will help you effect economies and . . . keep your product on the move.

*Illustrated literature available*

**ASHWORTH BROS., INC., WINCHESTER, VIRGINIA**



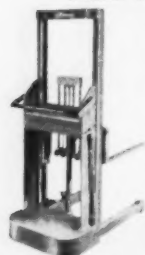
**SALES ENGINEERS:** Atlanta, Baltimore, Boston, Buffalo, Charlotte, N. C., Chicago, Cleveland, Dallas, Detroit, Fall River, Mass., Greenville, S. C., Louisville, New York, Philadelphia, Pittsburgh, Rochester, St. Louis, St. Paul, Tampa, Canadian Rep., Peckover's Ltd., Toronto, Montreal.

Circle 17 on Reader Service Card for more information

**AMERICAN**  
*Safeway*

**PORTABLE ELEVATING TRUCKS**  
for any stacking job

From 46" to 130" lift



STANDARD  
MODELS  
priced from

**\$190<sup>00</sup>**  
to  
**\$855<sup>00</sup>**



Your crew can do twice the  
handling work for  
the same payroll cost

...and to take the heavy work  
and heavy costs out of  
HORIZONTAL HANDLING

**AMERICAN**  
**LOAD-JOCKEY**



... the new drive  
attachment for  
portable elevating trucks

MATERIALS-HANDLING DIVISION  
*The American Pulley Company*  
4200 Wissahickon Ave., Philadelphia 29, Pa.  
AMERICAN SAFEWAY TRUCKS—  
by the makers of the famous American Pressed-Steel  
Hand Trucks



Circle 16 on Reader Service Card

**NEW EQUIPMENT SECTION**

**Vertical Shaft Engine**

The Model HAENL air-cooled  
vertical shaft engine will operate  
within a power and speed range



from 4.7 hp at 1600 rpm to a top  
rating of 9.2 hp at 3600 rpm. It  
has a piston displacement of 23  
cubic inches (3 inch bore x 3-1/4  
inch stroke) and is designed for  
low silhouette, compact installa-  
tions. According to the manufac-  
turer, this is the largest engine  
offered for original equipment.

*Wisconsin Motor Corp.*

Circle 433 on Reader Service Card

Circle 114 on Reader Service Card

**MASTER  
HAND TRUCKS**

*light as a feather...  
strong as an OX*

They're lighter, more rugged, and  
balanced for fast loading. Con-  
structed of 1" chromolly tubing  
and hi-tensile steel toe plate.  
Dealers inquiries invited. Send  
for catalog today.



**BOTTLERS' SPECIAL**  
SEMI-  
PNEUMATIC **\$16.95**  
PNEUMATIC \$23.35



**BEER and LIQUOR**  
SEMI-  
PNEUMATIC **\$17.45**  
PNEUMATIC \$23.84

**UTILITY TRUCK**  
SEMI-  
PNEUMATIC **\$17.45**  
PNEUMATIC \$23.84



P. O. Box 5146 • Dallas, Texas • Riverside 7-2441

He's lifting  
**5 tons**  
with 1 finger

**Speed Handling...**

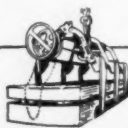


**Increase Storage Capacity with a C-F Lifter**

Here's 1 man—a C-F Lifter and  
an electric hoist handling 5 ton  
packs of sheet steel with speed,  
safety and economy. One C-F  
Lifter handles a wide range of  
sizes... adjustments are made

by the operator in a few seconds,  
permitting the Lifter to shift  
from wide to narrow sizes in a  
few seconds. Made in capacities  
from 2 to 60 tons.

Bulletin 51-28 shows you how to cut  
handling costs. Write for it today.



**CULLEN-FRIESTEDT CO.**

1320 South Kilbourn Avenue • Chicago 23, Illinois

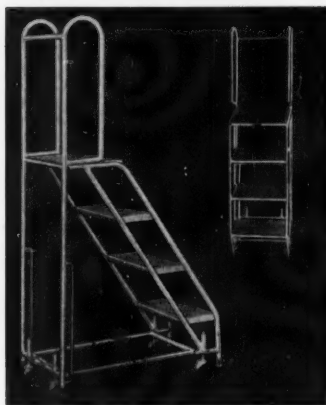


Circle 51 on Reader Service Card for more information

**MATERIAL HANDLING ENGINEERING**

## Folding Ladder

An addition to the Safety-Step line is a folding aluminum ladder. A quick lifting motion folds lad-



ders to a compact 10 inches for storing. A folding mechanism locks the ladder securely at the base. Handrails are available on 3, 4, and 5 step models.

*Ballymore Co.*

Circle 434 on Reader Service Card

## Front End Loader

A 2-yard, 4-wheel drive front end loader has recently been placed on the market. The Moto-Loader Model ML-156 has travel



speeds up to 24 mph. With a standard gasoline engine, the loader's weight is distributed 8200 pounds on the front axle, 10,900 pounds on the rear. The loader has one-foot control of travel direction and speed.

*Thew Shovel Co.*

Circle 435 on Reader Service Card

## Cuts Tire Storage Space

A special rack designed for handling tires reduces tire storage space 20% to 25%, simplifies handling, and eliminates tire damage. It's designed to be used with standard lift trucks either with forks or clamp attachments. In addition to cutting storage space and handling costs, this

rack also makes carrier loading easy, protects the tires' original contour, and prevents pilferage. A simple hand lever locks and



unlocks the tires. Rack is available any length.

*Cover Lumber & Supply Co.*

Circle 436 on Reader Service Card

## Tractor Tire

The "Dual Ring Front Tractor Tire" is priced 20 percent less than the original equipment tire, says the manufacturer, and features the same tread depth and size. The tire can be used on single front, wide front, row crop, and small industrial tractors. It is available in sizes 5.00-15, 4.00-15, and 4.00-19 (all 4 ply) and 5.50-16 and 6.00-16 in both 4 and 6 ply.

*B. F. Goodrich Tire Co.,*

*a div. of The B. F. Goodrich Co.*

Circle 437 on Reader Service Card



# SAVE TIME ON YOUR LOADING DOCK

WITH A

# ROLLWAY

PORTABLE  
*Steel*  
DOCK PLATE

**THAT ONE MAN CAN MOVE WITH EASE!**

- Constructed from heavy, rugged steel that can really take it!
- Designed so one man can move it in seconds!
- Wheels and handles fold completely out of the way when in use!
- Safety engineered to eliminate many costly accidents!

CALL OR WRITE **TODAY** FOR MORE INFORMATION!

**WOODFORD** MANUFACTURING COMPANY

1629 Delaware Des Moines, Iowa

Circle 190 on Reader Service Card for more information



## For industrial storage



Keyrack consists of just 2 basic parts, the sturdy stanchion and stringer. Just tap in place — no bolts, no wrenches, no loose parts. The rugged Keyclamp brace on the keyhole section and the key stud section HOLDS AS IT BRACES, eliminating expensive cross bracing. Send for illustrated folder.



**STORACK CORPORATION**

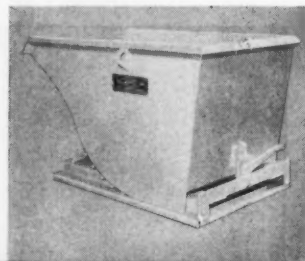
315 N. ADA STREET CHICAGO 7, ILL.

Chesapeake 3-4412

## Handles More Loads Per Hour In Less Time

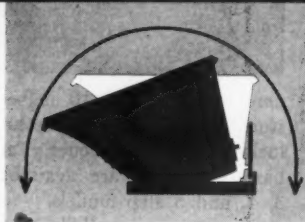
### APEX Self-Dumping HOPPERS

assure fast, safe  
handling of loose  
or bulk material.



... automatically dump ... return  
and lock themselves in load position ...

Constructed from heavy  
duty steel plate, stainless  
steel or plastic lined, they  
require no special lugs or  
attachments for self-stack-  
ing. They are handled with  
fork or platform trucks and  
can be equipped with cas-  
ters. Available in 1/2, 3/4, 1,  
1 1/2 and 2 yard capacities.



Write for detailed literature.



**Welding & Fabricating Corp.**

30 Interstate Street • Bedford, Ohio  
Bedford 2-6770



## WAREHOUSE OPERATIONS can be vastly improved with EUCLID CRANES

Warehouse operational effi-  
ciency is contingent in no small  
way upon material handling  
efficiency.

Euclid overhead cranes are  
contributing more and more to  
the speed up in flow of mate-  
rials in and out of today's  
warehouses.

Floor controlled and combi-  
nation floor and cab controlled  
cranes are available in a range  
of types and capacities. The  
steel bar warehouse pictured  
here relies on their "Euclid"  
to handle a big share of the  
work.

Semi-gantry cranes handle  
mill shipments and the vari-  
ous materials for the process-  
ing lines.

Chances are a survey by a  
qualified EUCLID representa-  
tive may disclose an opportu-  
nity to improve your present  
facilities.



Crosswise mounted, low  
headroom, motor driven  
trolley hoist. Capacities  
to 10 tons.

Visit us at Booth No. 101

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write  
TODAY  
for the  
CATALOG

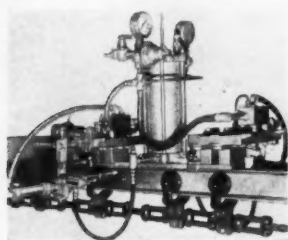
The EUCLID CRANE & HOIST CO.  
1365 Chardon Rd., Cleveland 17, Ohio

MATERIAL HANDLING ENGINEERING



## NEW EQUIPMENT SECTION

### Trolley Wheel Lubricator

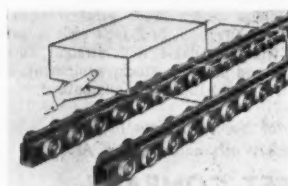


This air-actuated automatic trolley wheel lubricator services every wheel on both sides of the track without stopping the production line. Just open the air valve and the air-energized couplers engage the passing

trolley wheels to deliver an exact, measured amount of lubricant to each wheel. Wheels may be spaced yards apart, be irregular in spacing, or as close as 6 inches on centers.

*Alemite Division of Stewart-Warner Corp.*  
Circle 438 on Reader Service Card for more information

### Live Storage System Improved



An improvement has been announced in the Versarack first-in, first-out live storage system for cartons and other flat-surfaced items. A change in wheel rail design permits heavier loading, longer unsp-

Circle 132 on Reader Service Card for more information

## POWERFUL PULL

to open or close  
any freight car door  
in 20 seconds or less!



### ONE MAN CAR DOOR OPENER

SAVES TIME . . . SAVES LIVES . . . SAVES MONEY!

The Nolan Model H One Man Car Door Opener has been in successful use for many years, by thousands of companies who recognize its exclusive features of speed and safety. This popular tool enables one man to do by himself what formerly required the time and assistance of several men, usually taken off other jobs, to tug and yank while risking mangled hands, strained backs and other serious injuries. With a few quick pulls on the anchor chain as shown here, one man can get the most stubborn door rolling and wide open in a jiffy.

It will keep men working steadily and safely without exposing them to the hazards present when make-shift methods are used to open car doors. Note above how operator is away from the front of the door . . . away from its injurious, killing effects if it should fall!

Order one or more Nolan Model  
H Car Door Openers Today!  
The Nolan Company 116 Pennsylvania St., Bowerston, Ohio

ONLY  
**\$4500**  
EACH

F.O.B. Bowerston

# PRODUCTION LIFT INNOVATION! cuts costs — drastically! speeds feeding, receiving!

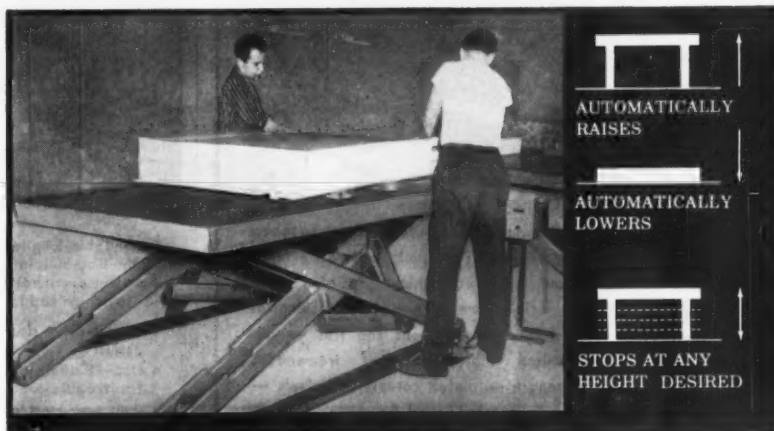
Installation work and cost eliminated . . . still Autoquip's Porta-Contact Production Lift multiplies your output!

Now, apply new standards of speed and efficiency for production line feeding and receiving. Save time, money on feeding and receiving of conveyors, presses, stamping, paper and production machines!

New Autoquip Porta-Contact Production Lifts are versatile, too . . . available to any platform size, any lifting capacity.

- Raises automatically . . . lowers flat as a pancake
- No installation cost
- Eliminates worker fatigue
- Substantially reduces labor cost
- Maintenance-free "no lubricating" bearings

An important contribution to modern industry. Get complete details, FREE catalogs—today!



Autoquip means automation in lifting

designers and builders of a complete line of oil hydraulic lift equipment

**Autoquip** CORPORATION  
1140 S. WASHTENAW,

CHICAGO 12, ILL.



TRANSFER BRIDGE



LEVEL RAMP

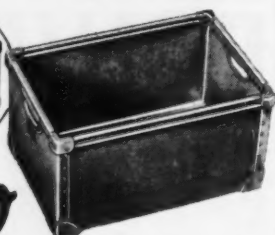
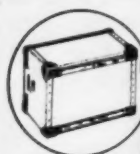


PORTABLE LIFT



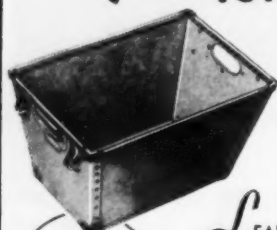
TRUCK LEVELER

**HIGH**  
ON THE  
**TOTEM**  
**POLL**



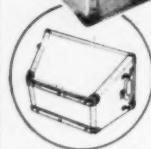
**Fedco**

**TOTE AND MILL BOXES**



Expertly constructed,  
with side walls of

**VULCANIZED  
FIBRE**



**L**EADING FACTORIES, MILLS and institutions, after fairly comparing these **TOUGH BABIES**, now use them as stand-alone equipment. Light, strong — easy-stacking or snug-nesting. Electro-galv-annealed steel top channels — reinforced hand holes — hardwood runners. We have **YOUR** size, straight or tapered . . . or will make to your own specifications.

Paper-Smooth  
**INSIDE**

Rust-proof  
**OUTSIDE**

Free-wheeling  
**UNDERSIDE**



**DROP SIDE MODEL**



**OPEN SIDE MODEL**

**ALSO  
FIBEROK**  
cans and waste  
receptacles for  
industry, home  
and office

Write for  
illustrated Catalog

**Fedco**  
**FIBRE  
BOX TRUCKS**



Widely preferred in factories, store rooms — wherever Box Trucks must do a long-time, easy, economical job of moving materials. Featuring rust-proof, electro-galvannealed top rails and ribs — vulcanized Fibre walls of tremendous strength — plated corners and rivets — snag-proof hardwood floors — easy rolling self-lubricating rollers. Many different models, all stock sizes . . . or we'll build to your requirements.

**Federal FIBRE CORPORATION**

3704 Tenth St. Dept. 7 Long Island City 1, N. Y.

Circle 168 on Reader Service Card for more information

## NEW ROLLER FLORLINE MARKING MACHINE



- Rolls Paint On! Rolls Up to 1/2" of Barrier!
- Rolls Vertical Lines Up Wall, Pillar, Curb!

1 1/2 gal. size  
\$132.50

F.O.B.  
New Hudson

5 gal. size  
\$167.50

Uses sturdy, long-life roller. Ends hand-painting to finish lines that end short of barrier. Gives automatic, quickly applied vertical lines where required. Vertical lines stay visible when lines on pavement or floors become covered or worn. Paints smooth, even lines under many different surface conditions. Unique design feeds paint directly on roller thru multiple brass valves. Specify 4, 3, or 2-inch widths. Inter-changeable rollers of additional widths available. Rolls straight, curved, continuous and skip lines around and between stock, equipment, etc., at walking speed. Other models under \$100. Fully guaranteed.

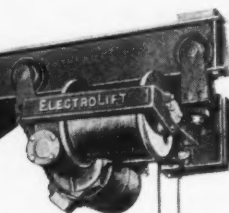
For Safety and Material Handling Lines in Plants;  
for Parking Lines, Cross Walks and Loading Areas

**H. C. SWEET COMPANY**

56863 Grand River, Dept. MH

New Hudson, Michigan

**SMOOTH...  
SWIFT...  
SAFE...  
SILENT...**



**ELECTROLIFT  
WORM-DRIVE HOISTS**

Dependable, long-lasting ElectroLift hoists are used by the thousands in America's largest manufacturing plants. Features of these units—ranging from 1/4- to 10-ton capacity—include:

- Worm-drive design for safe, sure braking action
- Use of quality components and materials for trouble-free performance
- Fully enclosed motor and gearing for clean, quiet operation
- Greater compactness for close headroom, safer action

For details on speed, models and operation, consult your classified directory for the ElectroLift representative nearest you.

**ELECTROLIFT**  
WORM DRIVE  
HOISTS

6457

204 Sargeant Avenue

Clifton, N. J.

Circle 79 on Reader Service Card for more information  
184

Circle 70 on Reader Service Card for more information  
**MATERIAL HANDLING ENGINEERING**

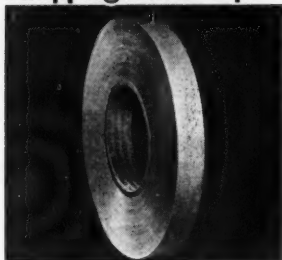
## NEW EQUIPMENT SECTION

ported rail spans, more uniform rolling, and a wider selection of wheel spacings, says the manufacturer. This results from changing the rail to a closed tubular section, increasing its size, and punching wheel mounting holes and rail attachment holes on regular one-inch centers.

*M-H Standard Corp.*

Circle 439 on Reader Service Card for more information

### Strapping With Tape:

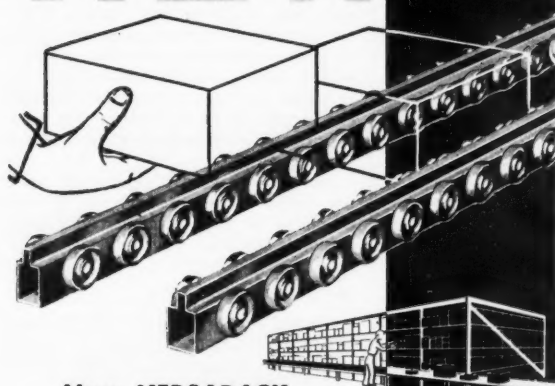


Permacel 15 strapping tape is reinforced with glass yarns for tensile strength up to 270 lbs/in. It's a rubber base, self-sticking, transparent tape ideal for strapping, palletizing, or unitizing all types of loads, as well as closing corrugated boxes. This tape is waterproof, and soft enough so it won't cut through corners of corrugated boxes or other materials. It meets all military and postal regulations, and falls under railroad freight classification II. Rule 41.

*Permacel*

Circle 440 on Reader Service Card for more information

# NEW IMPROVED



### New VERSARACK heavy-duty rail . . .

- Heavier Loading
- Better Flow
- Easier Picking
- More Compact Storage
- Lower Cost



**M-H STANDARD CORP.**  
315 Communipaw Ave., Jersey City, N. J.

The BEST  
live storage rack  
is now BETTER

Modern Versarack  
live storage . . .

saves space —  
speeds picking

first in, first out.

Circle 130 on Reader Service Card for more information  
JUNE, 1959



## ACCURATE WEIGHT AT A MODEST PRICE

- ✓ Calibrated with **Certified** dead weights.
- ✓ 16" diameter dial. Easy to read—easy to see.
- ✓ Ball bearing swivel hook. 360° rotation.
- ✓ Dial protected with thick plastic crystal.
- ✓ Weighs only 42 lbs. May be carried in one hand.
- ✓ Operates on leverage principle. Scientifically correct!
- ✓ Rapid adjustment to cancel out tare loads.
- ✓ Shockless mechanism. No pointer flutter.
- ✓ Compact size. Uses a minimum of headroom.
- ✓ **Lowest** price despite outstanding quality.
- ✓ Capacities to suit every requirement.

*Write  
Today!*

FREE CATALOG  
shows prices and  
capacities and  
tells how YOU can  
save up to 22%  
on labor costs.



**W.C. Dillon & CO., INC.**

14568Q KESWICK STREET • VAN NUYS 8, CALIFORNIA  
PHONE: STATE 5-3168

Circle 63 on Reader Service Card for more information



# Save Time, Labor ON ALL LIFT - AND - MOVE OPERATIONS!

## "Weld-Bilt" PRODUCTS

### WELD-BILT PORTABLE ELECTRIC ELEVATORS

Telescopic or Hinged,  
capacities  
up to 4,000 lbs.



### WELD-BILT HYDRAULIC LIFT TRUCKS

Wide, narrow widths, in capacities  
2500 to  
10,000  
lbs.



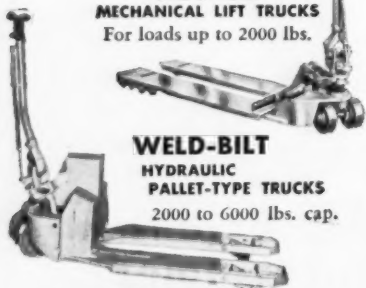
### "PAL-BOY"

PALLET TYPE  
ONE-STROKE  
MECHANICAL LIFT TRUCKS  
For loads up to 2000 lbs.



### WELD-BILT HYDRAULIC PALLET-TYPE TRUCKS

2000 to 6000 lbs. cap.



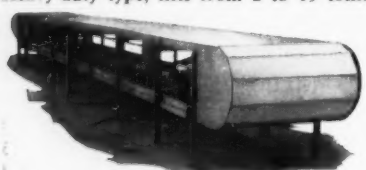
### WELD-BILT

HYDRAULIC LIFT TABLES  
Heavy-duty type, lifts from 2 to 15 tons.



### WELD-BILT STEEL BELT CONVEYOR

Horizontal or inclined styles, in  
sizes from 12" to 60" widths.



**WEST BEND EQUIPMENT CORP.**  
MATERIALS HANDLING ENGINEERS

335 WEST WATER STREET • WEST BEND, WIS

Circle 188 on Reader Service Card

186

## NEW EQUIPMENT SECTION

### Cut Aisle Width

The STOW (Side Transfer Optimum Warehousing) System features a fork lift truck attachment that permits side loading of pallets



into racks. According to the manufacturer, you can cut your regular 12-foot aisles by more than 50 percent and in some cases to as little as five feet. The STOW attachment will fit any standard fork lift truck. It handles pallets as well as skids, wire containers, dies, or other material normally requiring a fork truck for handling.

Equipment Manufacturing Inc.

Circle 441 on Reader Service Card

## MAKE MATERIAL HANDLING EASY



use  
**THERN**  
Hoists and Winches



Differential Hoists  $\frac{1}{2}$  and  
1 ton capacities.



Lever Hoists  $\frac{1}{2}$  to  
 $1\frac{1}{2}$  ton capacities.

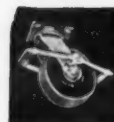
Hand and Power Winches  
1250 to 5,000 lb. ca-  
pacities.

Move heavy loads with ease! Use Thern Hoists and Winches. Many new features. Extra safe! Write for FREE catalog and low prices.



**THERN  
MACHINE CO.**  
3762 West 4th St.,  
Winona, Minn.

Circle 170 on Reader Service Card



Wheel Brake  
and Swivel  
Lock Casters



Wheels of  
all sizes  
and types

Completely  
Sealed  
Casters



Extra  
Heavy-Duty  
Casters



Medium  
Duty Casters

Dual or  
Triple Wheel  
Casters



V-Groove Wheel Casters

**your  
BEST  
move!**

## ALBION *industrial...* CASTERS

Albion casters checkmate your materials handling problems. They are versatile, dependable, economical and available right now. Whether you need a caster for light, medium, heavy or extra heavy duty requirements—standard or special—Albion casters are the practical answer.

Albion casters are available in every conceivable range of industrial size, type, capacity and desired wheel type to suit your needs.

Make the best move...get all the facts on Albion Casters today. Write, wire or phone for the information you need. Albion is always at your service.

*Do it now...*

request your copy of the Albion Caster and Wheel catalog. Yours for the asking.

**ALBION  
INDUSTRIES, INC.**

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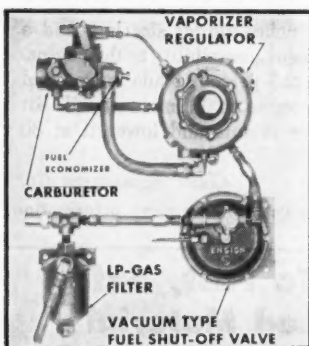
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MATERIAL HANDLING ENGINEERING





## Specify **ENSIGN LP-GAS**

**CARBURETION**  
The right combination for  
**LIFT TRUCKS**  
LOW COST, SMOG FREE  
DEPENDABLE OPERATION



Every Unit proven by years of service

**MODEL W. VAPORIZER-REGULATOR**—Small compact. Assures complete vaporization and efficient combustion resulting in clean operation, low oil consumption and long engine life.



**MODEL MGI LP-GAS CARBURETOR**—Positive starting without guesswork priming. Fully balanced. Has calibrated fuel economizer, effective during practically all working loads.



**ENSIGN LP-GAS FILTER**—Extra large cleaning capacity. Durable and dependable. Unsurpassed in construction and workmanship.



**MODEL J VACUUM SHUT-OFF VALVE**—Used on nearly all fork lift installations. Positive vacuum type. Used in place of solenoid valve, vacuum or pressure switch.



Switch now to LP-Gas and Save. Insist on **ENSIGN**—**ACCEPT NOTHING LESS!** Send today for free booklet "LP-GAS, the ideal fuel for industrial trucks."

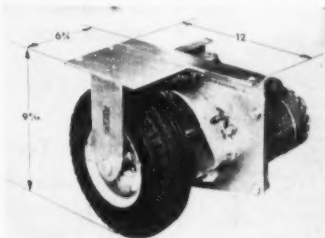
## ENSIGN

**CARBURETOR COMPANY**  
1551 E. Orangethorpe, Fullerton, California  
Branch Factory: 2330 W. 58th Street  
Chicago, Illinois

Circle 72 on Reader Service Card  
JUNE, 1959

### Powered Caster

The Electromite M2 powered caster will add drive power to your manual handling equipment. The caster is powered by a rechargeable battery; you can get



units with speeds up to 10 mph and load capacities up to 1600 pounds. The Electromite caster is designed for use on stock trucks, hydraulic lifts, hand trucks, and other equipment. Power wheels come in 8, 10, or 12 inch sizes.

Swartzbaugh Manufacturing Co.  
Circle 442 on Reader Service Card

### Restores Floors

Restore your damaged concrete floors with two thermo-setting epoxy resins. Armor-Crete topping is used to spot patch craters and

### Safe DRUM Handling



Easy to install on any standard lift truck.

**LIFTS  
TRANSPORTS  
STACKS**

#### TRAY-HART. DRUM CARRIER

- ▶ Alignment compensator automatically places drums into gripping position.
- ▶ Carrier loads over drums.
- ▶ Gravity action causes gripping shoes to securely hold load.
- ▶ Release can only be effected by application of hydraulic pressure.
- ▶ Standard models handle standard 55-gallon drums in diameters from 22 1/4" to 24 3/4", and permit 6" variation in height in same load.
- ▶ Special types available for Monorail, Crane, and other applications.



#### TRAY-HART. CYLINDER CARRIERS

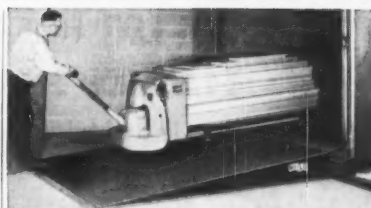
- All sizes and types of cylinders handled with ease.
- Quantity according to lift truck capacity.
- Write for complete information

Manufactured by

**WALZ & KRENZER, Inc.**

22 Flint Street, Rochester 8, N. Y.

Circle 195 on Reader Service Card



## Revolutionary New Kelley

### ADJUST-A-LIP DOCKBOARD

**SOLVES  
DOCK LOADING  
PROBLEMS**

## ADJUSTS 6 WAYS MECHANICALLY

Adjusts **Up - Down, In and Out** for truck beds above or below dock level. **Tilts Right or Left** compensating for canted trucks.

New Kelley **ADJUST-A-LIP** Dockboard allows trucks to back up to dock safely because special lip folds down to eliminate possible damage to end loads or truck bodies. No cumbersome operating arms to block trailer door openings and stall operations. Dockboard will not suddenly go up, or down, as truck backs in, thus preventing possible damage to closed overhead doors and assuring safe cross traffic movement. When truck pulls out **ADJUST-A-LIP** automatically returns to protected position behind dock bumpers.

### FREE KIT "How To Plan A Profitable Truck Dock Operation"

Get booklets on these subjects: Improving Dock Safety; How to Speed Loading; Modernizing Existing Docks; Dock Levelation Data; Designing Loading Docks.

Tear out and attach this coupon to your letterhead. Sign your name and mail to:

## HI-LO

Adjustable  
DOCKBOARDS

## KELLEY COMPANY INC.

2139 W. Mill Road  
MILWAUKEE, WISCONSIN

Circle 106 on Reader Service Card

Circle 173 on Reader Service Card for more information

## TOKHEIM High-Vacuum HAND PUMPS for industrial liquids



Here's an all 'round utility pump that saves much more than its cost in speeding production, improving housekeeping, preventing waste. Eliminates slippery floors and liquid accumulation so often the cause of fire and accidents. Delivers 20 gallons per 100 back and forth strokes. Pumps oil and many other liquids. (Write for approved list.) Has hose or spout outlet. Call your dealer, your Tokheim representative, or write factory.

General Products Division  
**TOKHEIM CORPORATION**  
DESIGNERS AND BUILDERS OF SUPERIOR EQUIPMENT  
1668 Wabash Ave. SINCE 1901 Fort Wayne 1, Ind.

Subsidiaries: Tokheim N.V., Leiden, Holland — GenPro, Inc., Shelbyville, Ind.  
Factory Branch: 475 Ninth Street, San Francisco 3, California  
In Canada: Tokheim-Reeder of Canada, Ltd., 205 Yonge St., Toronto, Ont.

## WIRE TAINER

the sensible, convenient way to handle Stock  
STACKING FOLDING



**OPEN BASE 1 & 2 TON CAPACITY**

Write for circular and details

**SPRINGPORT STEEL PRODUCTS CO.**

SPRINGPORT, MICHIGAN

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188

## NEW EQUIPMENT SECTION

ruts. A coating of Liqui-Steel is added to form a protective coating. This is available in clear, colored, or non-slip types.

Permafix Div. of  
PSC Equipment Corp.

Circle 443 on Reader Service Card for more information

### Rough Terrain Truck

A pneumatic tire fork lift truck with a 5000 pound capacity has been added to the Clarklift line. It is designed for outdoor use over rough terrain. Named the CY-50, the



truck features a two-speed, power shift transmission with a manually controlled creeper gear. It has a turning radius of 88½ inches, power steering, and a swing-out hood for complete accessibility to the engine. The CY-50 will climb a 22.5 percent grade loaded and will travel forward or reverse at 11 mph. It will lift a capacity at 58 feet per minute and lower it at 80 feet per minute.

Clark Equipment Co.

Circle 444 on Reader Service Card for more information

## The Key To Fast, Safe Mechanized Material Handling At Freight Docks



**ROWE Adjust-A-Dock**

■ To improve service and reduce handling costs, F. W. Woolworth uses 12 fully-adjustable ROWE hydraulic docks. Raised or lowered to the level of the truck bed, the Adjust-A-Dock cuts costs by speeding the handling of 100 truck loads of merchandise in an eight-hour shift.

The Rowe Adjust-A-Dock is a rugged, self-contained unit built for long trouble-free service and minimum maintenance.

• See Us at The  
• MATERIAL  
• HANDLING  
• EXPOSITION  
• June 9-12  
• Booth 2009

• Write for our  
• new free catalog.



**ROWE METHODS, Inc.**

2534-C DETROIT AVE.

CLEVELAND 13, OHIO

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**MATERIAL HANDLING ENGINEERING**

Circle 213 on Reader Service Card for more information

**counts... prints totals... keyed to time!**

1270

3829 10 PM

1045

3746 9 PM

0981

**TALLY-PRINT**  
PRINT-OUT RECORDER

TALLY-PRINT counts practically anything—prints totals on tape at periodic intervals and shows accumulated totals visually. Tally-Print shows how much production you get—and exactly when you get it!

Machine production, gallons of gas pumped, cash register sales, conveyor traffic—are but a few of the operations monitored.

Tape chart pinpoints peaks and lows, furnishes accurate cost- and time-study data, guides distribution of men and equipment. Tally-Print is universal in application, easy to install and extremely low in cost.

With Manual Reset.....\$225  
With Automatic Reset.....\$295

For full details, write for free Catalog KT-6

2188

**standard** INSTRUMENT CORP.  
657 BROADWAY, NEW YORK 12, N. Y.

**NOW there is a better way!**

**KEE-KLAMPS**

+  
Ordinary 3/8" to 2" Pipe for the economical construction of safe and dependable:—

Pallet Racks  
Bar & Shape Racks  
Mezzanines . . .  
Railings . . .  
Storage Racks  
. . . and other structures

No Threading . . .  
No Welding . . .  
No Drilling . . .

Save Time! Save Labor!  
Engineering Service Furnished

Dealer Inquiries Invited  
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**GASCOIGNES INDUSTRIES, INC.**

1329 E. 289TH ST., WICKLIFFE, OHIO

See us in Booth 2127, MHI SHOW, Cleveland, June 9-12

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JUNE, 1959

**The Key**

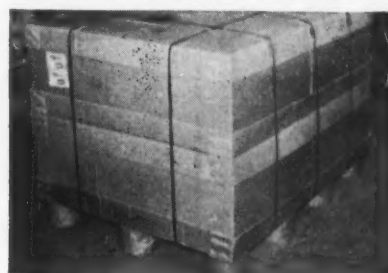
**The Grub Screw**

**The KEE KLAMP**

**A tube is fitted**

**and then another**

Circle 159 on Reader Service Card for more information



## 560,000 soap wrappers on this paperboard pallet

There are 560 bundles of 1,000 wrappers each in this unit load. They weigh 2,100 pounds. Base of the load is a Signode pallet with twelve posts 4 1/4" high to accommodate a special hand truck used in in-plant handling. Overall dimensions are 53" x 42" x 33" high. Five steel straps are centered between posts. For more details, ask for Release #2.

Signode expendable paperboard pallets are light, strong, clean, shock-absorbing. A 10-lb. pallet can support 6,000 lbs. And there's no physical problem or bookkeeping problem of return—an advantage to you and your customers.

Let a Signode Pallet Licensee—a dependable local supplier—help you design a corrugated unit load that will give you maximum savings. We will be glad to put you in touch with one or more licensees near you. Just write Signode.

**Sponsored by Paperboard Pallet Manufacturers**



In cooperation with  
**SIGNODE STEEL STRAPPING CO.**  
Dept. SP, 2618 N. Western Ave., Chicago 47, Ill.

**UP WITH ECONOMY**

**1001 DIFFERENT USES**

**LET GRAVITY DO IT**

**POWER ON THE CURVE**

**UNIBILT CONVEYOR SYSTEMS**  
You can assemble yourself

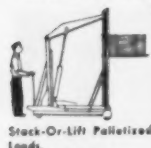
**CONVEYOR SPECIALTY CO., INC.**  
35 Years' Experience Means Dependable Quality and Engineering  
Send for NEW Full Line Brochure

36 Newport Ave., North Quincy 71, Mass.  
Distributors in Key Cities

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Circle 154 on Reader Service Card for more information



Stack-Or-Lift Palletized Loads.



Load Trucks and Lay Pipe with Convertible Mast.



Mate Dies and Repair Machine Tools.



Store Supplies and Finished Products.



Lift and Tilt Drums.



Move Large Machines with Dual Cranes.

FOR  
VERSATILE  
LIFTING POWER

PRICED AS  
LOW AS  
\$149.00  
TM 1/4

specify  
**RUGER**  
MULTI-PURPOSE  
MOBILE  
HYDRAULIC CRANES

NEW STACK-OR-LIFT  
ACCESSORY AVAILABLE  
For 1/2, 1 and 2 ton  
cranes.

Ruger mobile hydraulic cranes reach-in-under-over . . . lift more for less. Only Ruger enables one man to combine almost all lifting, stacking and moving jobs into one operation. Ruger Multi-Purpose crane models are: floor . . . truck . . . convertible floor and truck . . . short mast . . . high mast . . . wide base . . . adjustable legs and retractable outrigger for side lifting. Variable speed hydraulic controls at no extra charge. Electric models optional. Get the facts about versatile lifting power, send for data today.

The Crane with  
1000 uses . . .  
capacities 1/4  
to 3 ton.

**RUGER**

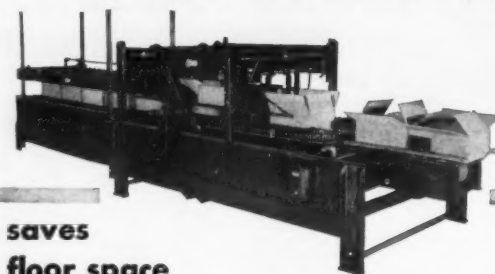


**RUGER EQUIPMENT INC.**  
601 West Fourth Street  
Uhrichsville, Ohio

N-654-RE

Circle 218 on Reader Service Card for more information

## A-B-C Short Case Sealer

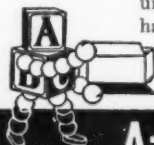


saves  
floor space

This A-B-C Short Case Sealer really increases packaging efficiency. Glues, folds and seals either or both top and bottom flaps in one operation—automatically. Speeds up to 30 cases a minute. Finest welded construction. Ball bearing construction reduces maintenance. Guaranteed not to get out of "time."

**WHATEVER YOUR PACKAGING PROBLEM**, there's a proved A-B-C machine to solve it—case sealers, unloaders and unscramblers, side sealers, hand gluers; case openers and case loaders.

WRITE TODAY FOR DETAILS  
FLOOR PLANS & SPECS



**A-B-C PACKAGING MACHINE CORP.**  
TARPON SPRINGS, FLORIDA

**OHIO**  
TRUCKS &  
TRAILERS

**NOW**

at production line prices!



Rough handling heavy tonnage materials breaks down power operated equipment, adds to the cost and nothing to the value of your operations.

OHIO heavy-duty trailers (from 2 to 30-ton capacity) are designed and constructed to the individual needs of industry . . . can be furnished with many styles of wheels, steering mechanisms, platform sizes . . . have safety automatic couplers.

Eliminate costly material handling problems with OHIO heavy-duty trailers . . . built to your requirements . . . at production line prices!

Write for prices.

**OHIO**

**GALVANIZING & MFG. CO.**  
NILES, OHIO

See us in Booth 129, MHI Exposition

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190

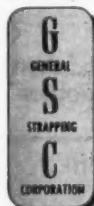
Takes 'em  
as they come!

The NEW  
AUTO-BAND  
Fully  
Automatic  
STRAPPER



The introduction of this new machine undoubtedly marks the greatest advance for many years in the field of Tensional Steel Strapping. Five times faster than hand strapping and completely automatic—without an attendant. All sizes and types of cases, cartons, bales and packages, within the wide limits of the machine can be strapped with equal speed and efficiency. The machine makes its own seal automatically

from a coil of special Seal Strip carried inside the machine and can provide 7,500 seals at one filling. Not only does this make for economy but it also ensures a uniform seal of great strength which lies flat to the package and facilitates handling and packing.

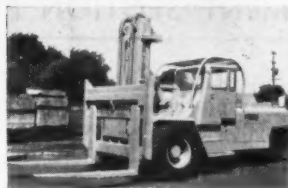


**GENERAL STRAPPING CORPORATION**  
100 Park Ave., New York 17, N.Y.

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MATERIAL HANDLING ENGINEERING



## Heavy Duty Fork Trucks



The Gerlinger H series fork lift trucks are available in 32,000 pound, 36,000 pound, and 40,000 pound capacities. The H-40, illustrated, will lift 40,000 pounds. Standard lifting heights for these trucks are from 10 to 20 feet. Torqmatic power shift transmission is standard equipment on all H series trucks. This assures a full, even flow of power under all operating conditions, says the manufacturer.

Towmotor Corp.

Circle 447 on Reader Service Card for more information

## Loader for Many Uses



The handyman 210 utility loader is designed to handle many different materials and functions. As a loader, it quick-lifts 1000 pounds of bulk material over 10 feet high in 11, 13, or 18 cu. ft. buckets. Other handling applications can be handled by switching from bucket to front pallet fork, dozer blade, or crane boom. Power is supplied by a 34 hp gasoline engine. Other features: ferro-metallic clutch, anti-

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# 35 new models!

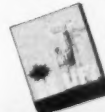
## E-Z LIFT

This complete new line of Lift Trucks has simply "outdone" all competition. They are built the sturdiest and priced lowest!! Available in battery operated or hand operated models.

1500 lb. cap.

**\$297<sup>00</sup>**  
MODEL B

COMPLETE WITH HEAVY DUTY 12 VOLT BATTERY AND BUILT-IN CHARGER.



FREE—For complete new catalog and price list, WRITE DEPT. F

**CROWN CONTROLS CO. INC.**

Washington Street • New Bremen, Ohio

Visit us in Booth #1816 at MHI Exposition in Cleveland

## The MAINE Line



**EACH TIRE TRIPLE CHECKED**  
for durability  
for tear resistance  
for bond strength

Specialists In Industrial Solid Tires

**MAINE RUBBER PRODUCTS CO.**  
WESTBROOK, MAINE



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JUNE, 1959



**UNIBILT COST-SAVER**

UNIBILT Belt Conveyor is ideal for inspection, packaging, assembly.



**UNIBILT COST-SAVER**

LIVE ROLL Conveyor is particularly suitable for transportation, deflection operations or hold back of loads.

**UNIBILT®**  
**CONVEYOR SYSTEMS**  
You can assemble yourself



**CONVEYOR SPECIALTY CO., INC.**

35 Years' Experience Means Dependable Quality and Engineering  
Send for NEW Full Line Brochure

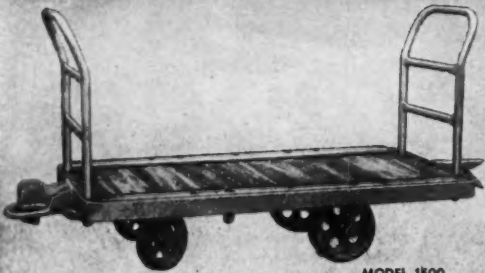
36 Newport Ave., North Quincy 71, Mass.  
Distributors in Key Cities

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# JAKES

**America's Finest  
Industrial Trucks and Trailers**



MODEL 1500

Literature available  
Capacities from 2,000 to 10,000 pounds

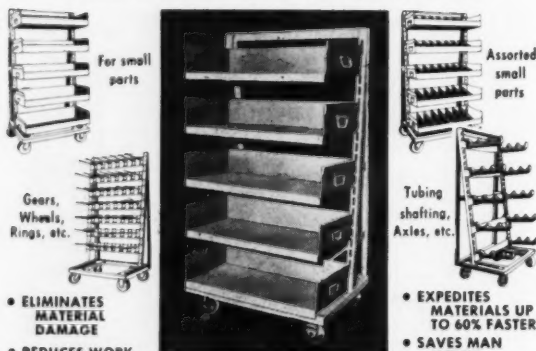
## JAKES FOUNDRY COMPANY

Established 1891

2800 Charlotte Avenue      Nashville 9, Tennessee

## THE VER-T-RACK

**THE ACME OF VERSATILITY**



For small parts

Gears, Wheels, Rings, etc.

Assorted small parts

Tubing, shafting, Axles, etc.

- ELIMINATES MATERIAL DAMAGE
- REDUCES WORKER FATIGUE
- MAXIMUM EFFICIENCY AT MINIMUM COST

HEIGHT—65½" LENGTH — 35"  
WIDTH — 24" CAPACITY 2000 lbs.

- EXPEDITES MATERIALS UP TO 60% FASTER
- SAVES MAN HOURS
- SAVES FLOOR SPACE
- GREATER SAFETY FACTOR

Equipped with 6" roller bearing steel wheel casters

**VER-T-RACK** can be handled with lift truck.

Trays are adjustable on **VER-T-RACK**

**PRICE — \$49.50** Varied Accessories Extra

Slightly higher west of the Rockies Write today for descriptive literature

**THE VINCE BASNIK COMPANY**

MATERIAL HANDLING DIVISION

• 2020 CENTER STREET • CLEVELAND 13, OHIO

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## NEW EQUIPMENT SECTION

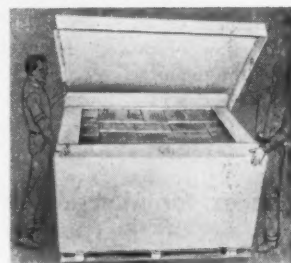
friction drive bearings, 5-speed transmission, forged one-piece front axle. Synchronized shuttle transmission and power steering optional.

*J. I. Case Co.*

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### Corrugated Boxes for Unit Loads

King-size corrugated boxes are now available to consolidate small packages into one large load quickly, easily, and economically. The containers are made of triple-wall corrugated board. They're made of two parts: a half-slotted carton, and a larger slipover sleeve with stiffened flaps. After the lower half is filled, the sleeve is slipped over to create an additional amount of space which, in turn, is loaded to the top. In addition to making the boxes stronger, this procedure does away with the bending over needed for packing and unpacking deep boxes. A corner-cut top and wooden skid complete the container.



*Tri-Wall Containers, Inc.*

Circle 449 on Reader Service Card for more information

## SAVE 50%

ON YOUR  
ADDRESSING COSTS  
WITH  
AUTOMATIC  
**ROL-FLO**  
STENCILER

Whether you must stencil 5 cartons or 5,000 the ROL-FLO will give you uninterrupted performance.

Proper pressure on the squeezable plastic handle keeps the roller saturated and working perfectly at all times. Designed especially for those whose stenciling needs call for a greater supply of ink or where an ink pad can not be conveniently carried.

This means high speed stenciling at a saving of 50% for your production line addressing.

THE INK  
SUPPLY IS  
IN THE  
HANDLE



SEND FOR YOUR FREE  
COPY OF "HANDY HELPER"  
SHIPPING ROOM SUPPLY CATALOG

DIAGRAPH-BRADLEY INDUSTRIES, INC.  
P. O. BOX 269 HERRIN, ILL.

Circle 61 on Reader Service Card for more information  
**MATERIAL HANDLING ENGINEERING**

## High Capacity Electrical Trucks



Heavy duty electric industrial trucks, the Titan Series, are designed for rough handling operations in steel mills and foundries. They have capacities

from 15,000 to 20,000 pounds. Manufacturer claims speed and maneuverability; in spite of its heavy duty capacity, the truck illustrated is only 50 inches wide and 99 inches long (less forks). The truck is built to load and unload boxcars with doors only 7 feet wide.

*The Elwell-Parker Electric Co.*

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## Enclose-It-Yourself Compartments

Visqueen polyethylene film makes it possible for you to totally enclose any area in your plant cheaply



*lite-line*

**MAGNESIUM  
DOCKBOARDS  
ENGINEERED to**

# Save Ton Hours!




*lite-line*  
**METAL INDUSTRIES**

Division of  
**COPPERLOY Corp.**  
CLEVELAND 25, OHIO  
Magnesium Products  
Mobile Ramps • Pallet Dollies  
Custom Weldments


Circle 216 on Reader Service Card for more information

Circle 6 on Reader Service Card for more information



## UNDERHUNG CRANES

the ALL-STATE star is on the rise — watch it SHINE!



**SOUND ENGINEERING  
RUGGED CONSTRUCTION  
QUICK DELIVERIES  
MODERATE PRICES**

Shown here is an ALL-STATE 10-ton Underhung Motor-Driven Single Girder Crane with 5 step speed control. Designed and engineered to handle dies onto and from a 4,000-ton Draw Press.

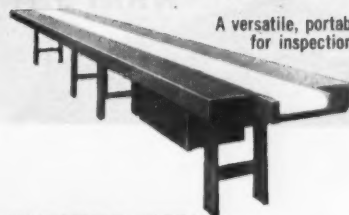
No installations too large or too small for ALL-STATE CRANE

Photo courtesy of A. O. Smith Corporation Milwaukee

Write for FREE Catalog

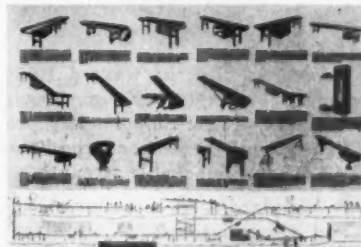
**ALL-STATE Engineering Co., INC.**  
7021 North 76th St., Milwaukee, Wis. Telephone: FLagstone 3-8050  
Representatives in All Principal Cities

## UNITABLE<sup>®</sup> BELT CONVEYOR



A versatile, portable conveyor for inspection, assembly, packaging.

## UNIBILT<sup>®</sup> Conveyors



Send for new  
**UNIBILT<sup>®</sup>  
Bulletin**

Illustrates and describes complete line of conveyors, contains helpful application data, and outlines service available for engineering complete conveyor systems.

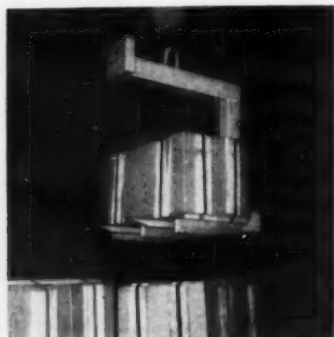
CONVEYOR SPECIALTY CO., INC. 33 Newport Ave., North Quincy 71, Mass.

**KEEP CONVEYOR  
SPECIALTY IN MIND**

A complete line of package handling conveyors and conveyor systems.

Circle 205 on Reader Service Card for more information





## How Cady Pallet Lifters Make Your Hoists & Cranes Into Fork Lifts at Low Cost

You can now handle pallet and other unit loads where fork trucks are too expensive or impractical. America's foremost industries are saving thousands of dollars in first cost, packaging cost, handling cost, and maintenance cost with Cady Pallet Lifters. Repeat orders are proof of savings. Counter-balanced to hang level, they reduce non-productive handling costs in plants, in yards, on docks, and on job sites. 16 standard sizes—custom models to fit special loads and conditions. Also coil and concrete pipe lifters. Write or phone Jackson 4145.

**CADY**  
METAL FABRICATING, INC.  
78 Schenck St.  
N. Tonawanda, N.Y.



## NEW EQUIPMENT SECTION

and effectively. You can make permanent or temporary compartments for storage, humidification, dehumidification, etc. Just build a wooden or metal frame, and stretch the wide rolls of polyethylene film around it to totally enclose it. This system is used by aircraft manufacturers for low-cost dehumidified storage.

*Visking Co.*

*Div. of Union Carbide Corp.*

Circle 451 on Reader Service Card

## Variable Speed Pulley

This variable speed pulley will provide ratios up to 3 to 1 at 3 1/3 hp at 1150 rpm, or 5 hp at 1750 rpm. According to the manufacturer, the pulley changes speed instantly with just fingertip pressure while the machine is in motion. Both pulley faces move simultaneously and equally to give constant belt alignment, each side being independently actuated by its own spring. Known as the No.

*The* **BECO**

## *Super Lift* **LEVER DOLLY**

- Why Pay More!
- Guaranteed
- Stronger
- Safer



- For immediate shipment, wire phone, or pin this ad to your letterhead and mail to:



**BECO - Bettendorf, Iowa**

Four Models • Metal or Rubber Wheels

## Q. WHAT IS IT? WHAT'S IT FOR?



A.

Frankly, we don't know.

The customer didn't tell us. But he wanted 1,000, and we made them at an amazingly low cost. Special sizes and shapes of shop boxes are economically produced by our "Chem-Board" process of rigidizing hi-test corrugated board to remarkable strength.

We make many standard size tote boxes . . . nesting, stacking and vertical sided . . . but we'll custom-make any box your product or use calls for.

More and more famous name industries are using Convoy Tote Boxes. Try us.

**CONVOY, INC.**

CANTON 6, OHIO

P. O. Station B, Box 216-F,

Circle 49 on Reader Service Card for more information

194



Greenwood  
7-4569

## SPECIFY ELTON

### F SERIES CONVEYORS for handling bulk materials

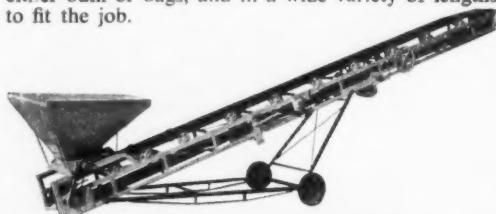
They do a first class job on fertilizer, grain, sand, rock, ore, and many other commodities.

#### THEY HAVE:

Ball bearings throughout. Choice of hoppers. Gas or electric drive.

With hopper agitator and screens for conditioning materials as they are handled

With dual drive giving two speed operation for either bulk or bags, and in a wide variety of lengths to fit the job.



FEATURES LIKE THESE PAY OFF IN ACTUAL OPERATION

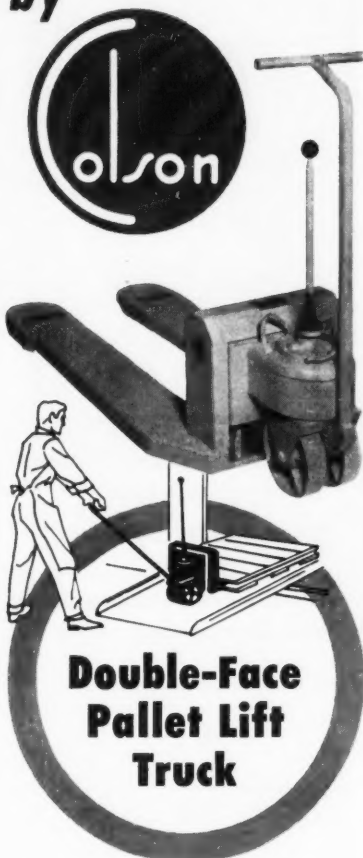
Write today for full information.

**THE**  
**CHANTLAND COMPANY**  
HUMBOLDT, IOWA U.S.A.

Circle 42 on Reader Service Card for more information  
MATERIAL HANDLING ENGINEERING



# **Demanded by industry! Designed by**



## **Double-Face Pallet Lift Truck**

Improved...with every feature industry has asked for...the easiest-to-use most economical truck on the market. Exclusively Colson's, the new Roll-O-Cam\* pallet entry device preserves pallets... prevents sliding or skidding. This lightweight new truck features 240° turning arc, new balanced load design and wider wheels. Spring counter-balanced handle. Available in models for 2500 to 4000 lb. capacities. Dozens of other new features. Write for free catalog, and information on revolutionary Roll-O-Cam\*

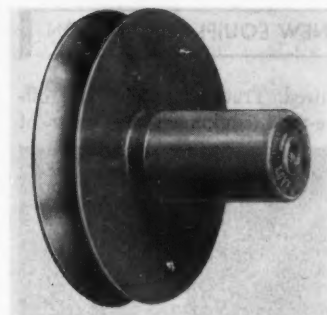
\*Patent Pending

**Write to:**  
**The Colson Corporation**  
**Special Products Div.**  
**Somerville 43, Mass.**

Plants in: Jonesboro, Ark., Elyria, Ohio,  
Somerville, Mass., and Toronto, Canada.

Circle 46 on Reader Service Card

JUNE, 1959

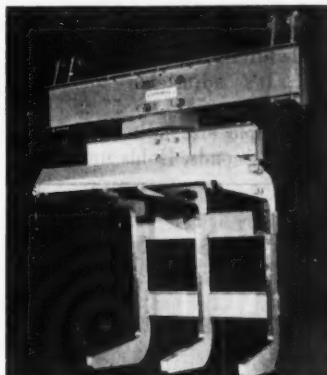


3050 variable speed pulley, it uses a  $1\frac{13}{16}$  inch top width variable speed belt.

*Lovejoy Flexible Coupling Co.*  
Circle 452 on Reader Service Card

## **Rotating Hooks**

This triple hook device can lift 60,000 pounds and rotate horizontally. It has three high tensile steel C-hooks, positioned on 32-



inch centers by spreader bars. It is counter-balanced to remain level with or without a load. The triple hook is supported by a beam attached to the rotator. The rotator is supported by a double beam equipped with two bails spaced on 8-foot centers for double crane hoist mounting.

*Heppenstall Co.*

Circle 453 on Reader Service Card

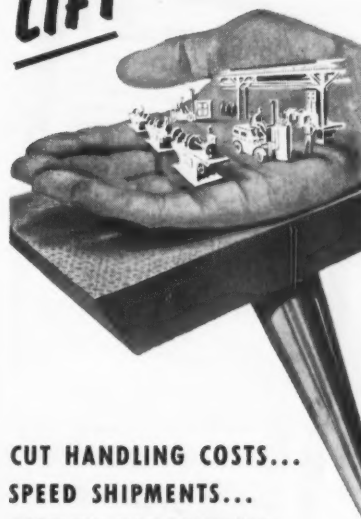
## **Turbine Engine**

A supercharged gas turbine engine of 300 hp has been developed. The manufacturer states that the 704 engine weighs only one-fourth as much as a truck diesel engine while its fuel economy rivals the diesel. A wide variety of fuels can be used—unleaded gasoline, kerosene, jet engine fuel, light diesel fuel—and no warm-up time is re-

## **GIVE YOUR PRODUCTION**

**A Wayne**

## **LIFT**



## **CUT HANDLING COSTS... SPEED SHIPMENTS... STEP-UP PRODUCTION**

Boost productive man hours in your plant and cut handling costs... with Wayne Industrial Lifts. From loading platform to production line there's a Wayne Industrial Lift to save you time, money and labor. Every one is made to last for years without trouble... designed for easy servicing.

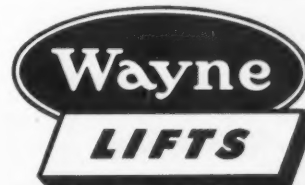
Wayne Industrial Lifts include dock levelers, truck levelers, platform lifts, crossover bridges and industrial truck service lifts. Let a Wayne Lift Engineer show you how Wayne LiftTronics—the science of handling materials economically—can save you money. Write for folder to The Wayne Pump Company, Industrial Products Div., Fort Wayne 4, Indiana—Div. Symington Wayne Corp.



**Wayne  
Cross-Over  
Bridge**



**Wayne  
Materials Lift**



Circle 186 on Reader Service Card

195

✓ **check**  
the many advantages of  
**DARNELL**  
CASTERS & WHEELS

**1 RUBBER TREADS**

... a wide choice of treads suited to all types of floors, including Darnellprene oil, water and chemical-resistant treads, make Darnell Casters and Wheels highly adapted to rough usage.

**2 RUST-PROOFED**

... by zinc plating. Darnell Casters give longer, care-free life wherever water, steam and corroding chemicals are freely used.

**3 STRING GUARDS**

... Even though string and rattlings may wind around the hub, these string guards insure easy rolling at all times.

**4 LUBRICATION**

... all swivel and wheel bearings are factory packed with a high quality grease that "stands up" under attack by heat and water. Zerk fittings are provided for quick grease-gun lubrication.

*For Lower-Cost and Longer Service Life*



**DARNELL**  
CASTERS AND WHEELS

Always **SWIVEL**  
and **ROLL**

Let the skill of Darnell engineers furnish the sources of profit in caster use. There are valid reasons for Darnell leadership. In every Darnell Caster and Wheel there is a responsibility that is reflected in maximum service.



More than  
**4000**  
Models

SEND FOR THIS  
FREE MANUAL

Look in the  
YELLOW PAGES  
under  
CASTER & WHEELS

**DARNELL CORPORATION, LTD.**  
DOWNEY (LOS ANGELES COUNTY) CALIFORNIA  
37-28 SIXTY FIRST ST. WOODSIDE 77, L. I., N. Y.  
36 NORTH CLINTON STREET, CHICAGO 6, ILLINOIS

Circle 58 on Reader Service Card

**NEW EQUIPMENT SECTION**

quired. Trucks, tractors, and off-the-road equipment are some of



the applications mentioned for this engine.

*Ford Motor Co.*

Circle 454 on Reader Service Card

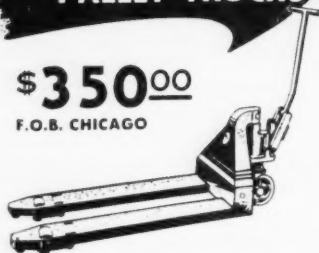
**Fills Small Bags Fast**

Model 134 Bagger is a high-speed filling machine for small bags. It's adjustable for sizes from 2 3/4" x 5 3/4" to 5" x 7 1/2", with simple size adjustment taking just seconds. Holds up to 200

**NEW** Top Quality...Low Price  
**BT** FULLY HYDRAULIC  
**PALLET TRUCKS**

**\$350.00**

F.O.B. CHICAGO



**CHECK These Features**

- 3' 4" Lowered Height
- 5" Lift
- Light Weight
- Accurate Steering
- Short Wheelbase
- Quality Construction

BT24 (2400 lb. Capacity).....\$350

BT44 (4400 lb. Capacity).....\$395

Both models available in 20" and 27" widths; 36" 42" and 48" lengths. Specify when ordering.

• WRITE-WIRE-PHONE •  
(Dealer Inquiries Invited)

**Industrial Hdlg. Equip. Co.**

1223 W. Monroe • Chicago 7, Ill.

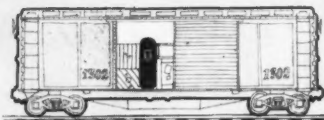
Phone MOnroe 6-8554

Circle 214 on Reader Service Card

**A Timely Tip  
from  
Mr. Shor-Kwik®**



**U. S. Rubber  
Shor-Kwik® System  
speeds  
freight-car loading...  
cuts demurrage costs**



Tough, rubber-nylon inflatable, reusable Shor-Kwik Dunnage prevents in-transit cargo shifting and impact damage... cuts cost of claims. Quick to install and remove, it speeds turn-around time... saves man-hours. To learn what this system can do for you, write, or phone DE 1-4000, United States Rubber Company, Providence, R. I.



**United  
States  
Rubber**

Circle 184 on Reader Service Card  
**MATERIAL HANDLING ENGINEERING**

**SERVIS RECORDERS**  
installed on 17  
Lift Trucks

**SAVED \$40,000  
A YEAR**



**EVERYBODY**  
*was happy!*

**WORKERS** no longer complained about discrepancies in pay checks—they knew the Servis Recorder work-record was right!

**OTHER OPERATING DEPTS.** and even the training school received several of the lift trucks no longer needed on their previous assignments due to the new efficiency!

**THE DEPT. SUPERVISOR** received a cash award for efficiency!

**MANAGEMENT** . . . well, \$40,000 savings ain't hay! Management thinks Servis Recorders are wonderful—in fact they have bought 30 more! (Name of this company furnished on request.)

**AND you?**



You can profit, too, with Servis Recorders. Attach them to any equipment that moves including production machinery, lift trucks, switch engines, company cars or trucks. They record charts showing operating time and idle time of all equipment. With these records you can declare war on inefficiency!

Write for illustrated literature.

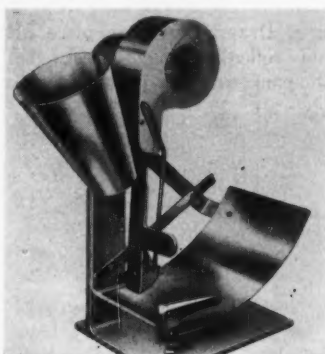
**THE SERVICE RECORDER  
COMPANY**

1013D ROCKWELL AVE., CLEVELAND 14, OHIO

See us in Booth 2306  
at the MHI Show

Circle 157 on Reader Service Card  
**JUNE, 1959**

bags or open-end envelopes.  
Easily loaded from front or back.



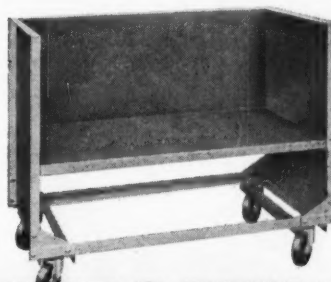
An air blower opens the bags for quick filling. The manufacturer claims it pays for itself within a few weeks.

*Anderson Bros. Mfg. Co.*

Circle 455 on Reader Service Card

### One-Piece Pans

A line of one-piece, leak-proof steel tote pans and small parts pans is available. You can use them for handling and storing many tool room and shop items, and for washing and cleaning



**VERSATILE  
ALL-PURPOSE TRUCKS**

by **WILDER**  
*IN QUALITY*

27 standard style and 150 standard size platform, shelf, tray, rack, stake, bin, box and table trucks to select from. Special sizes can be furnished.

Write for Complete Information on Wilder's Full Line of Production Handling Equipment

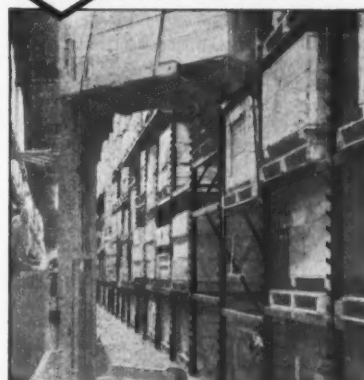
**WILDER MFG. CO., INC.**  
PORT JERVIS, NEW YORK

Circle 202 on Reader Service Card

**HARTMAN**  
SYSTEMS PAY OFF!

**FLEXIRACK**

COMPLETE ADJUSTABILITY  
solves storage problems.



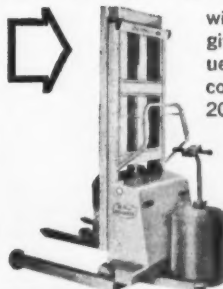
**POWER DOCK**

Unique 30" in and out motion  
plus 24" up and down . . . to  
serve any type truck quickly  
and safely.



**BOOSTER**

with Power Drive  
gives big truck value  
at portable lift  
cost. Capacity to  
2000 lbs.



**WRITE  
TODAY  
FOR  
DETAILS.**

**Hartman METAL FABRICATORS**  
131 Murray Street, Rochester 6, N. Y.

Please send literature on:

☐ FLEXIRACK ☐ POWER DOCK ☐ BOOSTER

Name .....

Firm .....

Street .....

City .....

State .....

Circle 93 on Reader Service Card



MAKE DUMPING A

**PUSHOVER!**

AND CUT HANDLING COSTS

Looking for a safe, economical way to lift and dump any free-flowing material in one operation? Now you can easily handle all bulk material . . . in solid or powder form, and in any type of container, such as drums, boxes, barrels and even bags . . . with these material handling "power-houses."

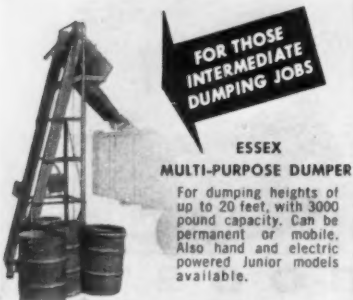
All dumpers are flexible in design so they may be fitted to meet exactly with customers' specifications. Many built-in safety features are employed throughout to insure long hours of maintenance-free operation.



FOR THOSE  
REALLY HIGH  
DUMPING JOBS

**ESSEX  
VERTICAL DUMPER**

In one smooth operation this equipment can lift containers to any practical height, dump the contents and return the container to load position.



FOR THOSE  
INTERMEDIATE  
DUMPING JOBS

**ESSEX  
MULTI-PURPOSE DUMPER**

For dumping heights of up to 20 feet, with 3000 pound capacity. Can be permanent or mobile. Also hand and electric powered Junior models available.



FOR THOSE  
FLOOR-LEVEL  
DUMPING JOBS

**ESSEX  
HYDRO-DUMPER**

A hydraulically-operated dumper for dumping where no lifting is required. Mobile or stationary models available. Both will lift up to 3 tons.



Write for FREE catalog —

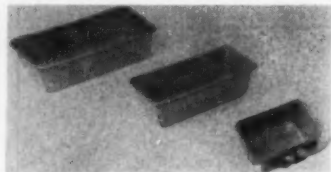
**ESSEX**  
CONVEYORS, INC.

Dept. MH, 165 Franklin Ave., Nutley 10, N. J.

Circle 74 on Reader Service Card

## NEW EQUIPMENT SECTION

parts. Drawn from one piece of cold rolled 16-gauge steel, the tote pans weigh 8¾ pounds, are



6¼ inches deep, and measure 12 x 18 inches top I.D. They have ½-inch drag-hook holes and 1-inch curled rim.

*Republic Steel Corp.,  
Berger Div.*

Circle 456 on Reader Service Card

## Add Power To Lift

You can add power to your manually operated portable lift by installing a power drive. The drive operates from a 12 volt battery in the lift. It can be factory or field installed on any of the manufacturer's lifts of 1000 pound or more capacity. Standard drive

## MLM BRIDGES THE LOADING GAP...



*Safely!  
Easily!*

**MLM Dock Boards are LIGHTER . . .  
SAFER . . . STRONGER . . . BETTER BUILT**

- Self adjusting for varying height of dock and truck bed.
- Exclusive Handholds formed with side-rails. NO CASTINGS!—NO WELDS!
- Safety-tread surfaces for maximum traction . . . minimum accidents.

**LET MLM IMPROVE YOUR MATERIALS  
HANDLING REQUIREMENTS**

Dock Boards • Yard Ramps • Light-weight Dollies • Pallet Dollies

**BUILT TO YOUR SPECIFICATIONS!**

Sales Territories Open

Write today  
for complete  
information!

**MODERN LIGHT METALS, Inc.**  
Coloma, Michigan  
Phone: HOward 8-5041

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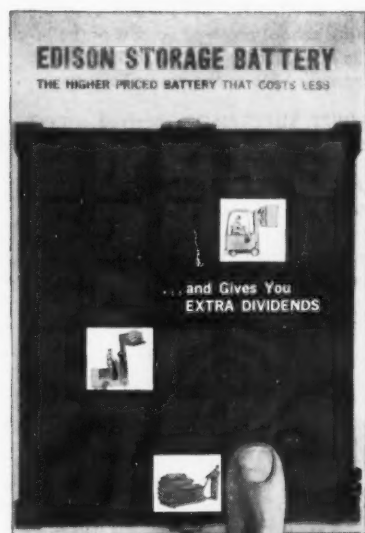
# NEW BOOK PROVES EDISON

IS "THE  
HIGHER PRICED  
BATTERY THAT  
COSTS LESS"

**SEND FOR IT NOW!**

If you operate battery-electric industrial trucks or plan to purchase them, then this new EDISON book was written for you. It tells and proves how an EDISON battery—through the years—actually costs less. Send for this book now. Write Storage Battery Division, Thomas A. Edison Industries, West Orange, New Jersey. In Canada: International Equipment Co., Ltd., 90 Bates Road, Montreal, P. Q.

## EDISON Nickel Alkaline STORAGE BATTERIES



Another  
Product of



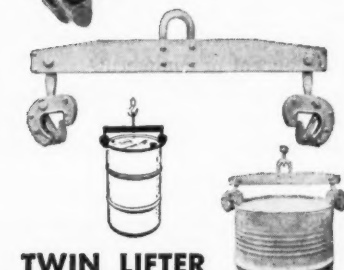
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**MATERIAL HANDLING ENGINEERING**




**YOUR BEST MOVE... MOVE**  
with **MERRILL**  
**MATERIAL HANDLING DEVICES**



**LIFTING CLAMP**



**TWIN LIFTER**



**DRUM LIFTER**



**DRUM TILTER**



**HAND GRIP**

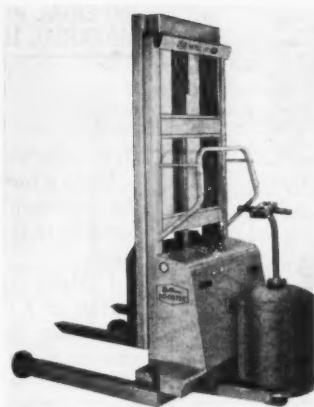


**DRUM OPENER**

For Interesting Information write

**MERRILL BROTHERS**

56-74 ARNOLD AVE., MASPETH, N. Y.  
Circle 124 on Reader Service Card  
JUNE, 1959



wheel is nine inch diameter with four inch molded rubber tread.  
*Hartman Metal Fabricators, Inc.*  
Circle 457 on Reader Service Card

**IN CASE YOU MISSED IT . . .**  
in our February, 1959 issue, there are a limited number of reprints of the article, "How to Sell a Driver Training Program" available. Address your request to **MATERIAL HANDLING ENGINEERING**, 812 Huron Rd., Cleveland, Ohio.



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**Glue-Fast**  
**LABEL GLUERS**

FOR UNGUMMED LABELS TO CANS, BOTTLES, CARTONS.  
Fast! Efficient! Economical!

**10 DAY FREE TRIAL!**  
Write today on your letterhead. No salesman will call. We will ship Glue-Fast machine and glue without obligation.

Glue-Fast Equipment Company, Inc.  
9-Y White Street, New York 13, N. Y.

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If you regularly address 5 or more cartons per shipment, you can make important savings and avoid costly errors by addressing your multiple shipments with

**STEN-C-LABLS\***

As a by-product of office procedure

You can prepare STEN-C-LABLS at the same time as your invoice, order, bill of lading or shipping papers—whatever your procedure or equipment—manual or electric typewriters, electric billing or accounting machines, slave machines or various IDP systems.



Imprinting direct to **PANL-LABL** on carton

Your shipping department makes unlimited impressions with STEN-C-LABL. Applicator direct to **PANL-LABL** printed on carton eliminating expensive, time-consuming gummed labels. All addressing errors, mis-shipments and repetitive writing are avoided.

There's a **STEN-C-LABL\*** to fit every multiple shipping need

. . . for imprinting on **PANL-LABLS**, gummed labels or tags . . . whatever your requirements.

**You might be shocked . . .**

. . . to find how antiquated and outdated your present method of addressing multiple shipments actually is. Five minutes of your time in checking your multiple shipping procedures may save you thousands of dollars!

Send for **FREE BROCHURE** giving full details!

**STEN-C-LABL, INC.**

Dept. MME-6, 1821 University Ave., St. Paul 4, Minn.

Please send me **FREE BROCHURE** on saving with STEN-C-LABLS.

Name \_\_\_\_\_

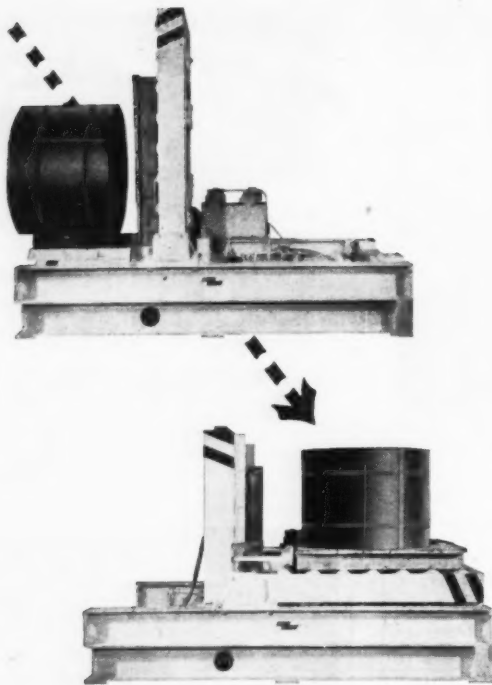
Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

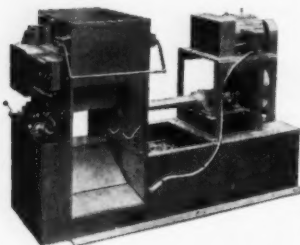
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Circle 167 on Reader Service Card



## Coil tilting made easy with these portable self-contained tilters

Coils of steel, tinplate, brass, aluminum and other metals are easily tilted from horizontal to upright or upright to horizontal position with the Salem-Brosius line of portable coil tilters. Completely self-contained, they are hydraulically actuated from a single electric motor power source. They can be moved from one position to another in the plant by crane and will tilt coils weighing up to 50,000 lb, centering them on pallets up to 66 in. square.



Slitting mill edge-trim and scrap wire are tightly balled and automatically ejected from this Salem-Brosius scrap baller.

## SALEM-BROSIOUS, INC.

25 Arch Street • Carnegie, Pa.

In Canada: Salem Engineering Limited • 1525 Bloor St. W. Toronto 9, Ontario

Circle 156 on Reader Service Card for more information

## IMPERIAL PLANT PUTS MATERIAL HANDLING TO WORK . . .

(Continued from page 107)

from underworked to overworked areas.

When a fork truck is assigned to an area, it becomes the responsibility of the unloading or warehousing foreman in that area to keep it working. The foreman must:

1. Make sure that the fork truck and trailer train operate as a team.
2. Keep the fork and walking type tow trucks operating within the assigned area.
3. Make certain that material is warehoused correctly.
4. Make certain that material is fed to the line correctly.
5. Direct special fork truck work requests to the transportation foreman.
6. Cooperate when the transportation foreman requests a temporary reassignment of equipment.
7. Make sure that the equipment is operating efficiently.
8. Enforce safety regulations.

### Operator Training

Like the tow train driver, the fork truck operator is on his own a great deal of the day. That's why they're carefully selected and trained. To make sure all fork trucks operate at top efficiency, the area foremen teach these things to truck operators:

- How to check out the fork truck at the beginning of the shift.
- His assigned area of operation.
- The right way to unload, warehouse and feed the lines.
- The harm done by misused and damaged equipment.
- The right way to put racks on trailers for line feeding.
- How to use air rights.
- The importance of returning empty wheeled equipment systematically to the unloading docks.
- The right way to place pallet loads and racks—"so you can see part number and keep the pallet runners at 90 degrees to the rack floor boards."
- How often to feed unit loaded items to the line.
- How to keep cycle checking aisles between racks and reserve storage areas.
- How to keep racks aligned along aisles and in reserve storage areas.
- The right way to install and use fork extensions.
- Safety and good housekeeping.

### Protecting Equipment

There are few pieces of equipment in an assembly plant that receive more abuse than material handling equipment. This abuse will become costly if its causes and results are left unchecked. One of the best ways to fight it says Imperial, is to establish on-the-job training and proficiency tests for drivers. These courses play an important part in stimulating interest and educating the operators.

## CLASSIFIED ADVERTISING SECTION

### USED EQUIPMENT—MEN—JOBS—LINES

Rates: for "Positions Wanted" \$8.00 minimum, limit 25 words. For all other classifications \$10.00 minimum for 25 words; each additional word 25c. Boldface type or all caps, \$12.00 minimum for 25 words, each additional word 35c. Box address counts as five words. All insertions payable in advance.

#### REPRESENTATIVES WANTED

Prefer engineering knowledge or background. To sell systems and engineered conveyors and special handling equipment. Ability to make own layouts if need be. Trolley, slat, belt, roller and varied systems for all types of industry. Give experience, data and lines now handled, and area covered. Write c/o MATERIAL HANDLING ENGINEERING, Box 6259.

#### BULK MATERIAL HANDLING ENGINEER

Growth opportunity with a major milling company. Handle consulting responsibility for Bakeries, involving cost, methods, equipment, operations and design of all aspects of flour material handling. Work closely with sales personnel. Locate in Minneapolis, with travel to all sections of the U. S. Applicants must have M.E. or

I.E. degree, with a minimum of five years experience in bulk material handling, Bakery operations or flour process engineering. Salary commensurate with background and experience. Send detailed resume to: MATERIAL HANDLING ENGINEERING, Box 6159.

#### WAREHOUSE AVAILABLE

In New Orleans, Jackson Warehouses, Inc. A complete shipping and warehousing service. Safe, convenient and efficient. Full insurance coverage; 7¢ per \$100 per year. Wire or write for rates. Call WH 5-5395 Jackson Warehouses, Inc., 2941 Royal St., an affiliate of S. Jackson & Son, Inc. Dedicated to efficient, dependable and trustworthy service since 1902.

#### SALES ENGINEERS NEEDED

Manufacturer of a new Semi-Bulk

Reusable Container is seeking qualified representation in several protected territories to assist numerous industries using flowable granular materials in eliminating current costly product handling. Only established representation with kindred lines will be considered. The Powell Pressed Steel Company, P. O. Box 151, Hubbard, Ohio.



## Lightest-Weight Bulk Body on the Road!

for all the **BIG** Jobs

### BAUGHMAN BULKMOBILE

34' STEEL BODY WEIGHS JUST 13,260 LBS. . . . a complete semi-trailer unit ready to roll. Same length Bulkmobile body fabricated in aluminum weighs only 8700 lbs. Other body lengths have proportionately same weights.

**Lighter-weight body means greater carrying capacity!**

- Choice of three drives—auxiliary engine hydraulic, mechanical or PTO hydraulic.
- Choice of two conveyors—drag chain or belt.
- Choice of four methods of rear discharge—belt conveyor, screw conveyor, belt-and-bucket elevator, or distributor.

WRITE today for illustrated Bulletin A-399.

No other BIG LOAD bulk body offers so much, yet weighs so little.

- Capacity from 336 cu. ft. to 972 cu. ft. (with even larger body sizes on special order).
- Discharge rate of 1 to 2 tons per minute, depending on material.
- Entire body completely compartmented at 4' intervals, with trip door for each compartment that is controlled by driver from side of body.

Service and parts from 200 service branches.  
Better service through better engineering.

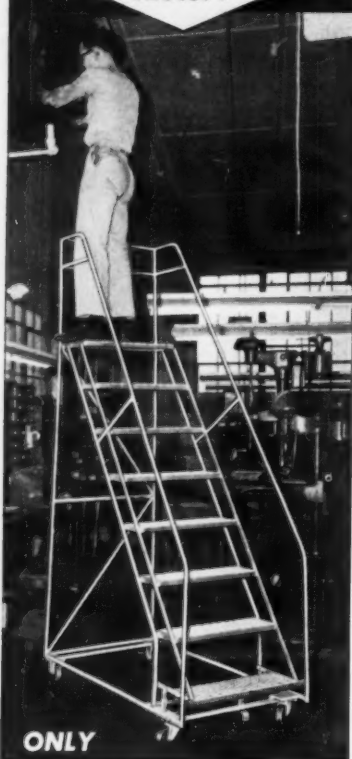


## BAUGHMAN MANUFACTURING CO.

172 ARCH STREET

JERSEYVILLE, ILL.

**HIGH-UP SECURITY**  
gets jobs done  
faster!



ONLY

## BALLYMORE "Hi-boy" LADDERS

have exclusive  
**PYRAMID** design  
and automatic



**BALLYLOCK** floor locking



**ALL-WELDED STEEL FOR REACHING  
HEIGHTS UP TO 15 FEET**

For complete information, write:  
**BALLYMORE COMPANY**  
WEST CHESTER 5, PA.

## BALLYMORE

**EQUIPMENT FOR  
ABOVE-FLOOR SAFETY**

LOOK FOR  
THIS LABEL  
TO BE SURE  
IT'S THE BEST



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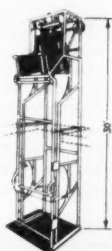
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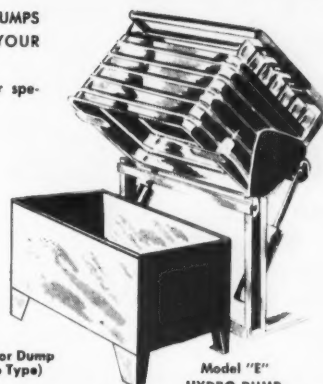
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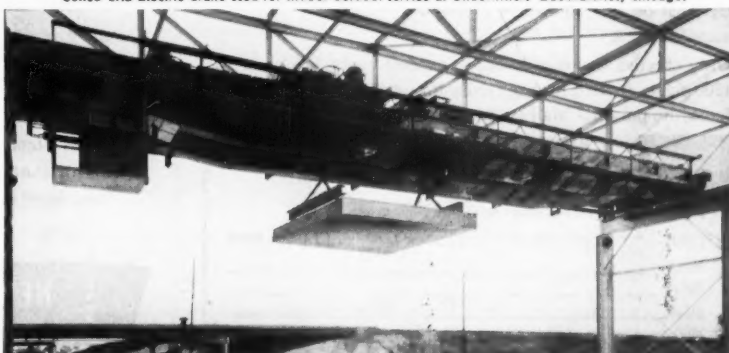
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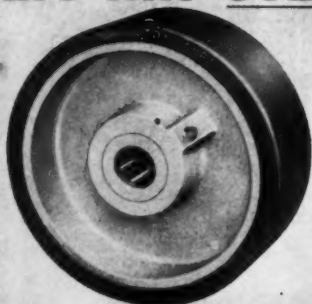
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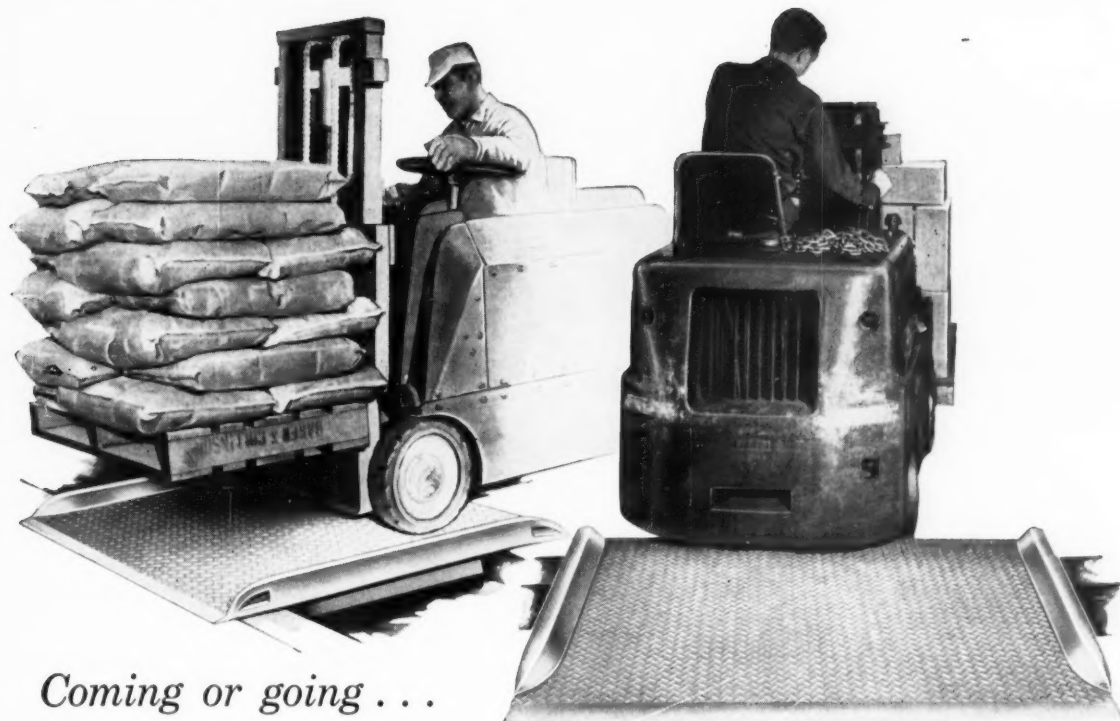
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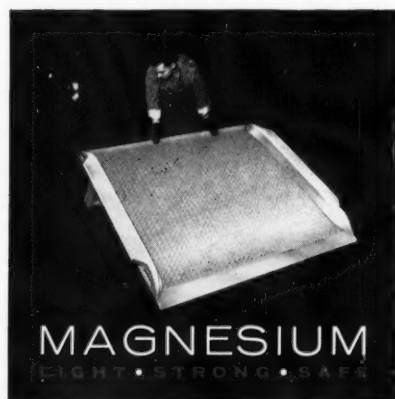
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